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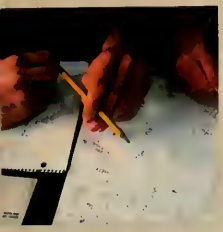

GRADUATE CATALOG
1985-1987

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University of New Haven

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GRADUATE SCHOOL CATALOG 1985-87

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This catalog supersedes all previous bulletins, catalogs and brochures published by the Graduate School and describes academic programs to be offered beginning in fall 1985. Graduate students admitted to the university for the fall of 1985 and thereafter are bound by the regulations published in this catalog.

The University of New Haven is committed to affirmative action and to a policy which provides for equal opportunity in employment, advancement, admission, educational opportunity and administration of financial aid to all persons on the basis of individual merit. This policy is administered without regard to race, color, national origin, age, sex, religion or disabilities not related to performance. It is the policy of the University of New Haven not to discriminate on the basis of sex in its admission, educational programs, activities or employment policies as required by Title IX of the 1972 Educational Amendments. This school is authorized under federal law to enroll non-immigrant alien students.

Inquiries regarding affirmative action, equal opportunity and Title IX may be directed to the director of equal opportunity.

Any male generic terms appearing in this book refer to both males and females and are used for grammatical simplicity and semantic convenience.

The university reserves the right, at any time, to make whatever changes may be deemed necessary in admission requirements, fees, charges, tuition, regulations and academic programs prior to the start of any class, term, semester, trimester or session.

Every effort has been made to ensure that the information contained in this publication is accurate and current as of the date of publication; however, the university cannot be held responsible for typographical errors or omissions that may have occurred.

Volume VIII. No. 8 April 1985

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Business Administration/Public Administration (M.B.A./M.P.A.)
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Computer and Information Science (M.S.)
Criminal Justice (M.S.)
Dietetics Administration (M.B.A.)
Electrical Engineering (M.S.)
Environmental Engineering (M.S.)
Environmental Science (M.S.)
Executive M.B.A.
Forensic Science (M.S.)
Gerontology (M.A.)
Hotel and Restaurant Management (M.B.A.)
Humanities (M.A.)
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Security Management (Criminal Justice)

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CALENDAR
1985-1987

Summer Term 1985	**Monday, July 8–Tuesday, August 20.**	
Fall Term 1985	**Monday, Sept. 9–Saturday, Dec. 14**	
	Winter term deadline for receipt of completed application and supporting materials*	**Tuesday, Oct. 1**
	Last day to petition for January graduation	**Tuesday, Oct. 15**
	Holiday (Thanksgiving), no classes	**Monday, Nov. 25 – Saturday, Nov. 30**
	Commencement	**Sunday, Jan. 19**
Winter Term 1986	**Thursday, Jan. 2–Wednesday, Apr. 2**	
	Spring term deadline for receipt of completed application and supporting materials*	**Wednesday, Jan. 1**
	Holiday (M. L. King Day), no classes – a make-up class will be scheduled	**Monday, Jan. 20**
	Holiday (Presidents' Day), no classes – a make-up class will be scheduled	**Monday, Feb. 17**
	Last day to petition for June graduation	**Saturday, Mar. 1**
	Holiday (Good Friday), no classes–a make-up class will be scheduled	**Friday, Mar. 28**
	Commencement	**Sunday, June 8**
Spring Term 1986	**Monday, Apr. 7–Saturday, July 5****	
	Holiday (Memorial Day), no classes – a make-up class will be scheduled	**Monday, May 26**
	Fall term deadline for receipt of completed application and supporting materials*	**Saturday, May 31**

**Holiday (4th of July), no classes — classes normally scheduled to be held on July 4-5 will have make-up classes scheduled prior to the holiday

Summer Term 1986	**Wednesday, July 9–Thursday, Aug. 21**	
Fall Term 1986	**Monday, Sept. 8–Saturday, Dec. 13**	
	Winter term deadline for receipt of completed application and supporting materials*	**Wednesday, Oct. 1**
	Last day to petition for January graduation	**Wednesday, Oct. 15**
	Holiday (Thanksgiving), no classes	**Monday, Nov. 24 – Saturday, Nov. 29**
	Commencement	**Sunday, Jan. 18**

Winter Term 1987

Monday, Jan. 5–Saturday, Apr. 4

Spring term deadline for receipt of completed application and supporting materials*	**Thursday, Jan. 1**
Holiday (M. L. King Day), no classes – a make-up class will be scheduled	**Monday, Jan. 19**
Holiday (Presidents' Day), no classes – a make-up class will be scheduled	**Monday, Feb. 16**
Last day to petition for June graduation	**Monday, Mar. 2**
Commencement	**Sunday, June 7**

Spring Term 1987

Wednesday, April 8–Tuesday, July 7

Holiday (Good Friday), no classes – a make-up class will be scheduled	**Friday, Apr. 17**
Holiday (Memorial Day), no classes – a make-up class will be scheduled	**Monday, May 25**
Holiday (4th of July), no classes – a make-up class will be scheduled	**Saturday, July 4**

Summer Term 1987

Monday, July 13–Tuesday, Aug. 25

*A prospective student who completes his or her application after this date may register for one term as a non-matriculated in-process student. This registration does not guarantee acceptance.

International students are not eligible for in-process registration because of immigration regulations. Students should submit completed applications and all supporting materials well in advance of these deadlines.

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THE GRADUATE SCHOOL

The University of New Haven is a private, coeducational university with a contemporary and innovative view of higher education.

The Graduate School offers a doctoral degree in management systems and master's degrees in 23 program areas at nine locations throughout Connecticut.

The main campus in West Haven offers all academic programs. The off-campus centers at Clinton, Danbury, Groton-New London, Middletown, Stamford, Trumbull, Wallingford and Waterbury offer courses leading to master's degrees in business administration, computer and information science and other programs.

Graduate School courses are offered on a 13-week trimester schedule, beginning in September, January and April. An intensive summer term is also offered. Most graduate courses are scheduled during the early evenings and on Saturdays to meet the needs of part-time, employed students.

In winter 1985, the Graduate School took a major step by scheduling courses during the day. The advent of day classes continues the growth pattern of steadily increasing both the number of courses and programs offered and the number of students served. Day classes are typically held in the afternoon.

The University of New Haven is fully accredited by the New England Association of Schools and Colleges. The university holds membership in the Council of Graduate Schools, the Northeastern Association of Graduate Schools, the Academy of Criminal Justice Sciences, the National Association of Schools of Public Affairs and Administration, the American Council on Education, the Association of American Colleges, the National Association of Independent Colleges and Universities, the Accreditation Board for Engineering and Technology, the Criminal Justice Accreditation Council, the American Dietetics Association, the College Entrance Examination Board and is a member of other regional and national professional organizations.

History

The University of New Haven was founded in 1920 as the New Haven YMCA Junior College, a branch of Northeastern University. The college became New Haven College in 1926 by an act of the Connecticut General Assembly. The college moved to its current location in 1960.

In 1969, New Haven College added the Graduate School to its established baccalaureate programs. Initially offering programs in business administration and industrial engineering, the Graduate School expanded rapidly. Today a doctoral program, 23 master's programs and additional courses have pushed graduate enrollment to more than 2,600.

On the fiftieth anniversary of the founding of the college, in 1970, New Haven College became the University of New Haven, reflecting the increased scope and the diversity of academic programs offered.

Today, the university offers more than 100 graduate and undergraduate degree programs in six schools: the Graduate School

and the School of Arts & Sciences, the School of Business, the School of Engineering, the School of Hotel, Restaurant & Tourism Administration and the School of Professional Studies & Continuing Education.

New Haven

The University of New Haven is located in south central Connecticut, between New York City and Boston, Massachusetts. Situated on a West Haven hillside overlooking Long Island Sound, the campus is easily accessible by car (using Interstate 95), local airports, bus and train service.

New Haven, just ten minutes away from the campus, is a city where arts and cultural activities flourish and coexist with science and business.

Settled in 1638 and rich in history and heritage, New Haven is proud of its past, prouder of its present and actively planning for its future. It's a manufacturing center, a deep water harbor, a major art center, a college town, and the "Gateway to New England." Although often synonymous with New Haven, Yale University is only one of seven colleges and universities in the immediate area.

New Haven is home to the Shubert, Palace, Long Wharf and Yale Repertory Theaters, New Haven Symphony, the Peabody Museum of Natural History, the Center for British Art, Eli Whitney Museum and the oldest university gallery in the western hemisphere, the Yale Art Gallery.

Admission

General Requirements

Admission requirements for the doctoral degree program in management systems are fully described on page 74.

Applicants to the University of New Haven Graduate School are required to have an undergraduate degree from an accredited institution. Certain programs have additional requirements for admission to specific curricula, details of which are included in the program listings in this catalog.

Admission decisions are based primarily on an applicant's undergraduate record. A prospective student who is currently completing undergraduate study should submit an official transcript complete to the date of application. In most cases, an admission decision will be made on the basis of a partial transcript, contingent upon completion of the baccalaureate degree. Registration will not be permitted until a final, official transcript is submitted to the Graduate School admissions office.

In support of an application, students may submit their scores from the Graduate Record Examination (GRE), the Graduate Management Admission Test (GMAT) or the Miller Analogies Test. Students may be required to take one or more of these tests.

Procedure

An applicant for admission to the Graduate School must submit a formal application, two letters of recommendation, complete official transcripts of all previous college work and the non-refundable

application fee. Application materials are located in the back of this catalog.

Students may be admitted for any term. Should a student be unable to enter the Graduate School during the term for which admission is granted, the acceptance will remain open for one calendar year. After one year, a new application for admission will be required.

Admission Categories

Applicants and students in the Graduate School are assigned to one of four categories: fully matriculated, provisional, special or auditor.

Students who wish to matriculate in a degree program, but complete their applications after the stated deadline, may register as *in-process* students in order to take advantage of advisement in their fields of study.

Fully Matriculated

Students accepted for entrance into a regular degree program are fully matriculated students.

Provisional

Applicants whose undergraduate average falls below the standard set for full matriculation may be accepted provisionally. Students accepted provisionally should seek out the advice of their coordinator or adviser so that their graduate work can be closely supervised.

Students must complete the work stipulated in their provisional acceptance before they will be evaluated for admission as fully matriculated graduate students.

Special

Special student status is reserved for students who do not wish to matriculate in a program. Registration is limited to 12 credit hours of graduate work. Should the student desire to continue graduate work, he or she must be accepted into a specific graduate program. Special students are responsible for meeting prerequisite requirements for the courses they wish to take.

Auditor

An auditor is allowed to attend class and is expected to participate in class discussions and complete the required assignments. An auditor receives no grade or credit toward any degree. Auditor status does not imply admission to any of the graduate degree programs. Both registered students and non-students are eligible to audit University of New Haven Graduate School courses.

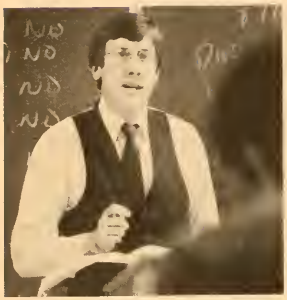
Admission of International Students

Qualified international students are welcome in the Graduate School of the University of New Haven. To qualify, a prospective student must have completed his or her undergraduate preparation in a degree program acceptable to the University of New Haven Graduate School. An applicant may be asked to provide substantiation of courses taken, grades received, and the academic reputation of the undergraduate school within the educational system of the country in which the school is located. All transcripts must be provided in English.

Since the review of applications from international students takes much longer than those from citizens of the United States, it is important that applications and all supporting materials be received by the Graduate School well before the stated deadline in the academic calendar.

U.S. Immigration regulations require that a student holding a student visa maintain adequate progress. Adequate progress means full-time study, which is generally interpreted to mean taking at least three courses each term. Prospective international students should note that not all graduate programs are designed to permit full-time study. A complete listing of such programs is provided on page 17.

To apply for admisson and begin study in a full-time graduate program, a prospective student should supply the Graduate Admissions office with the following information:



Application Materials

Application materials include a completed application form and appropriate fee, two letters of recommendation and official transcripts of all undergraduate work and graduate work completed. Certain programs may require completion of a questionnaire or specific tests. For further information see the description of the program of interest.

English Proficiency An international student must submit proof of English proficiency. This must consist of at least one of the following:

1. The Test of English as a Foreign Language (TOEFL) examination with a score of 500 or above. (Certain programs require a higher TOEFL score).
2. Proof that undergraduate work has been done in English.
3. Special arrangements made through the Graduate Admissions Office and the English Language Institute (ELI) at the University of New Haven. A student may, if approval is given, take the Institutional TOEFL exam and other comprehensive tests on the main campus at ELI. The scores from these examinations may be accepted in lieu of the official TOEFL examination. A student whose examination score falls below acceptable standards (TOEFL, below 550 but above 500) or whose undergraduate work does not provide necessary preparation may be admitted to the university subject to the requirement of a course of study in intensive work in English. This may consist of EL 600 English Language Workshop (non-credit), a full-time ELI program at the University of New Haven, or whatever is deemed necessary by the university to bring the student's English proficiency up to an acceptable standard for graduate study. The English Language Institute (ELI) at the university offers a wide selection of courses in English language skills, as well as a college skills workshop for qualified students.

Financial Requirements International students will need to provide a signed original financial resource statemment together with a $100 refundable deposit or a current official scholarship letter prior to the issuance of a Form I-20. The University of New Haven does not offer financial assistance to international students.

Form I-20 Certificate of Eligibility A Form I-20 will be issued only after a student has submitted all required materials, has been accepted into a program of study, and has provided acceptable proof of English proficiency and financial status.

Graduate students studying under an F-1 visa are allowed 24 months to complete a degree program. An F-1 student must register for full-time study. Once F-1 students have completed their degree programs, the Office of International Student Affairs will not issue an I-538 for extension of temporary stay, except for periods of practical training approved by the Graduate School and the U.S. Immigration & Naturalization Service (INS).

Initial Attendance at the University Upon arrival, an international student accepted into the Graduate School must report to the International Student Affairs office in order to get clearance to register in the Graduate School.

At the time of registration, a student will be required to pay a one-time international student fee of $200 and the tuition and fees for one trimester.

Accepted students are invited to contact the director of housing for assistance in locating living accommodations.

All international students are covered by the university health insurance program. This coverage supplements the services provided by the campus Health Services Center.

The general requirements and academic policies which apply to citizens of the United States also apply to all international students, unless otherwise stated.

Registration

Registration deadlines are listed in the course schedules published for each term. Returning students and new students who have been admitted to programs will receive registration materials and can register by mail.

Prospective students who complete their applications after the stated deadline may register as *in-process* students. International students may not register as *in-process* students. In-process students will not receive registration materials in the mail but may register in person at the main campus or at an off-campus center. Proof that the in-process student has an undergraduate degree will be required at the time of registration, and, whenever possible, unofficial transcripts of previous course work should be provided to facilitate advisement. In-process status remains in effect for a maximum of one term. In-process students may register for no more than six credits without the approval of the director of graduate admissions or the coordinator of the program for which they are applying.

It is the responsibility of in-process students to see to it that all materials in support of their application are received by the Graduate School in time for a matriculation decision before the next term. In-process students will not be permitted to register a second term until a matriculation decision has been made. Acceptance as an in-process student does not guarantee admission to the Graduate School.

Any student who fails to register for three consecutive terms will no longer receive registration materials. It will be the responsibility of the student to notify the Graduate Records office of his or her desire to continue graduate study. Files for students who revert to an inactive status will be retained for two years. At the end of that period, those files will be destroyed.

Students may not add a course after the first week of class unless written permission of the instructor is received. A student may withdraw from a course any time prior to the last scheduled class meeting. Course additions or withdrawals may be handled in person or by mail.

The university reserves the right to change class schedules or instructors at any time. It further reserves the right to cancel any course, and, in such cases, will refund full tuition to the students.

Students with an outstanding balance will not be permitted to register. Current students who register after the registration deadline will be assessed a late registration fee.

Academic Policies

Academic Counseling

It is the student's responsibility to select courses in accordance with prerequisites, the adviser's recommendations, the departmental plan of study (if required) and the requirements for the degree.

Students needing further explanation about program requirements or course sequencing should request academic advisement. Appointments for academic counseling should be scheduled through department chairmen or program coordinators. Off-campus advisement sessions are held prior to each trimester.

A student is not required to file a formal plan of study with the Graduate School. It is the student's responsibility to meet the stated requirements for the degree.

Academic Standards

The academic standing of each student is determined on the basis of the quality point ration (QPR) earned each term.

To determine quality points, each letter grade earned during a term is assigned a quality point value:

A — Four quality points
B — Three quality points
C — Two quality points
F — Zero quality points

P — Zero quality points
S — Zero quality points
U — Zero quality points
W — Zero quality points
I — Zero quality points
T — Zero quality points

The quality point ratio is obtained by multiplying the quality point value of each grade by the number of semester hours assigned to each course in the catalog, then dividing the total quality points carried by the total semester hours attempted in courses for which a grade of A, B, C or F is awarded.

A cumulative quality point ratio is obtained by calculating the quality point ratio for all courses taken at the University of New Haven. See the "Grading System" section following for an explanation of each letter grade.

Awarding of Degrees

The University of New Haven awards degrees twice a year, at commencements in January and in June. A quality point ratio of 3.0 is required for graduation from the Graduate School. Students completing their degree requirements for a degree at the end of the fall term will receive their degrees in January. Students completing their degree requirements at the end of the winter term will receive their degrees at the June commencement. Students completing the requirements for their degrees at the end of the spring term will receive their degrees the following January. Students completing the requirements for their degrees in July will receive formal statements that they have completed all degree requirements and will formally be awarded their diplomas iin January.

M.B.A. students who have C's in more than three courses will not be allowed to graduate. Instead, they will be advised to repeat one or more of those courses and must achieve a grade of B or better.

Candidates for January commencement must file a petition with the Graduate Records office no later than October 15, and for June commencement no later than March 1. Forms for this purpose are available in the Graduate School office and in the Office of the Graduate Registrar. Payment of the graduation fee must accompany the petition.

Should a candidate not fulfill all the requirements for graduation before the deadline after having filed the petition to graduate and paid the fee, the student will have to petition again at a later date. At that time, only the refiling fee will be charged.

All financial obligations to the university must be met prior to graduation.

Dropping/Adding a Class

A student who wishes to make a change in class schedule must complete a "drop slip" or an "add slip" or both. These are available from the Graduate Registrar's office. A fee will be charged for adding or dropping a course after the announced deadline.

Full-Time Study

A full-time graduate course of study is defined as three courses per term. Under unusual circumstances, the department chairman, the program coordinator and the Graduate School office could approve a reduction in credits.

Full-time enrollment is possible in the following programs: accounting, business administration, community psychology, computer and information science, criminal justice, dietetics administration, environmental science, forensic science, gerontology, hotel and restaurant management, industrial engineering, industrial/organizational psychology, industrial relations, legal studies, mechanical engineering, occupational safety and health management, operations research, public administration, taxation, and the business administration/industrial engineering and business administration/public administration dual degrees. Each of the above may also be pursued on a part-time basis.

The following programs have more limited schedule offerings, and generally are pursued on a part-time basis (one or two course offerings per term): electrical engineering, environmental engineering and humanities. International students may not matriculate into a part-time program.

Grade Reports

Reports of the final grade in each subject will be mailed to the student soon after the close of each term, providing all financial obligations have been met.

Grading System

The Graduate School uses the following grading system:

A — Superior performance
B — Good performance
C — Passing performance
F — Failure
P — Pass – carries credit hours toward the degree
S — Satisfactory performance in a non-credit course
W — Wlthdrawal from a course

I — Incomplete – given on rare occasions. A grade of **I** that is not changed within one calendar year automatically reverts to a **W**.

T — Used for thesis/seminar project students who have not completed work during the term in which they originally registered for the course. Students must complete their work within the maximum allowable time for graduate work.

U — Unsatisfactory performance in a non-credit course

Some employers require that a letter grade (A, B, C or F) be awarded if a student is to receive tuition reimbursement. It is the student's responsibility to inform the faculty member of his or her need for a letter grade.

Graduate School Ethics

It is Graduate School policy that all students are expected to complete all course requirements on their own initiative and endeavor, with no collaboration unless specifically authorized by an instructor. In addition, material used by students but authored by another individual, publisher, company, government or organization shall be identified as such by appropriate footnotes or references. Violations of this policy, either in fact or in spirit, will normally be handled by the faculty member involved, though they may be grounds for dismissal from the Graduate School. Students wishing to appeal the decision of a faculty member should contact the Graduate School office.

It is the responsibility of the student to meet all classes and take all exams on schedule. Faculty have the right to require a standard of attendance, even if it conflicts with professional and job-related responsibilities of students. Students whose jobs require that they be absent from class must realize that it is their responsibility to determine whether such absence is permitted by the faculty member involved, and to meet their professor's requirements for making up missed work, if the professor allows missed time to be made up.

Professors may assess a make-up examination fee when a student is permitted to take an end-of-term examination at a time other than the scheduled time except for conflicts caused by the examination schedule.

A make-up test fee is assessed when a student is permitted to make up an announced test during the term. Both these fees are paid at the Business Office.

Grievance Procedure

A formal policy for the handling of student grievances is available in the Graduate School office.

Probation and Appeals

Any graduate student whose cumulative quality point ratio is below 3.0, a **B** average, will be considered to be on academic probation, and may be required to obtain permission from the program coordinator before registering for additional course work. A student whose cumulative QPR is below 2.7 after completion of 24 credits will be required to withdraw from the Graduate School.

Appeals concerning required withdrawal from the Graduate School under these circumstances should be directed to the dean of the Graduate School, who will in turn refer the appeal to the department chairman and/or the responsible administrative unit.

Repetition of Work

A student may repeat a course, with the new grade superseding the old grade in the computation of the quality point ratio. The original grade remains on the transcript.

Research Projects, Seminar Projects, and Independent Study

Some departments and academic programs require the completion of research projects, seminar projects or independent study rather than theses. In these cases, as with theses, students must have the written approval of their advisers and department chairmen prior to enrolling. This is accomplished by completing the form, *Proposal for Research Projects, Seminar Projects or Independent Studies*, and securing required approvals.

Students preparing a research project, seminar project or independent study should follow the guidelines presented in the *Manual for the Preparation of Graduate Thesis and Seminar Projects*, copies of which are available in the Graduate School office.

Residency Requirements

Degree programs have a 30-graduate-credit residency requirement, with the exception of the M.B.A./M.S.I.E. and M.B.A./M.P.A. dual degree programs which have a 60-graduate-credit-residency requirement. Credits toward the residency requirements may be earned at the main campus or at the off-campus centers. Students should plan on taking at least three courses on the main campus.

Thesis

A number of preliminary steps are required before registration for thesis will be accepted by the graduate registrar. The student completes the form, *Proposal for Thesis*, in which the proposed subject, the methodology and the hypothesis are described. The student secures the approval signature of a faculty member who will serve as adviser. The student also must secure the approval of the proposed thesis and the thesis adviser from the program coordinator and the dean of the Graduate School. Only after the graduate registrar has received the signed proposal form will the student be permitted to register for thesis.

A thesis will carry no fewer than six academic credits taken over no fewer than two academic terms. A preliminary draft must be presented to the adviser at least 45 days prior to commencement. Upon approval by the adviser and program coordinator, two final, unbound copies are presented to the Graduate School at least three weeks before commencement. A thesis must be defended before a student's thesis committee and the dean of the Graduate School. After the dean of the Graduate School approves the thesis, credit is awarded and the thesis is deposited in the university library for binding and becomes part of the permanent collection. Additional copies may be required by the adviser or the program coordinator.

For guidance in the preparation of theses, graduate students should consult *A Manual for the Preparation of Graduate Thesis and Seminar Projects*, copies of which are available in the Graduate School office. Questions not resolved by the instructions should be settled in consultation with the adviser and by reference to a standard style manual. The Graduate School participates in the University Microfilm Masters Program, and outstanding theses will be awarded this

recognition upon the recommendation of the adviser, the program coordinator, or both.

Information concerning the doctoral dissertation may be found on page 77.

Time Limit for Completion of Degree

Students must complete all the requirements for their degree within five years of the date of their initial matriculation in the program. Any extension of the time limit can be granted only by the dean of the Graduate School after consultation with the appropriate program coordinator.

Transfer Credit

Transfer credit may be given for graduate courses taken at other accredited institutions subject to the following conditions:

a. the courses were at the graduate level;
b. each grade was **B** or better; and
c. the courses did not fulfill requirements for any other degree already earned by the student.

Graduate students at the university must secure written approval before taking courses at another institution if they plan to transfer that credit into their UNH program. Course coordination forms are available in the Graduate School office for this purpose.

Waiver of Courses

Some programs permit waivers of core courses on the basis of undergraduate courses taken at accredited institutions. Waivers of elective courses are not permitted, nor are waivers based upon experience. In such cases, substitution of a more advanced course may be allowed.

For a course to be waived, a student must first secure the written approval of the department chairman or a faculty member acting for the chairman in the department in which the waiver is requested.

Tuition and Fees

The following are the University of New Haven tuition, fees and charges which will be effective for the fall 1985 term. The university reserves the right, at any time, to make whatever changes may be deemed necessary in admission requirements, fees, charges, tuition, regulations and academic programs prior to the start of any class, semester, term or session.

Master's Tuition*

Tuition, per credit hour	$178
Executive MBA program	12,000
Non-credit course fee, per course	340
Auditor, per course	340
EL 600, English Language Workshop	534

*Tuition will be higher for 1986-87.

Master's Non-refundable Fees

Application Fee	$20
Auditor application fee	20
New international student fee (one-time fee)	200
Continuing registration fee	25

Graduate Student Council fee, per term	3
Graduation petition fee	35
Late filing fee, after March 1 (June), Oct. 15 (January)	25
Graduation refiling fee	10
Laboratory fee	60-69
Computer use fee	15-60
Late payment fee (after scheduled due date)**	25
Late registration fee, current students	15
Registration fee, per term	5
Senior professional certificate fee (payable upon completion of program)	10
Transcript fee, first copy	free
Additional copies	4
Fee for dropping a course	5
Make-up examination fee	7-10
Crediting Examinations, 1985-1986	100

Sc.D. Program Tuition & Fees (1985-1986)

Application fee (non-refundable)	$50
Tuition, per 700-level course	1,092
Registration fee per trimester	5
Graduate Student Council fee per trimester	3
Admission Examination (where applicable)	100

Additional fees for specialized research, dissertation preparation and continuing registration may be assessed as conditions require.

**A late fee plus 1½% per month penalty will be assessed on outstanding balances.

Payment

Tuition for graduate courses is due at registration. However, the university permits graduate students to pay tuition on an installment basis, paying one half with the registration form and the balance before the first day of the term. All students who have not completed tuition payments by the first day of the term will be assessed the late payment fee.

Students are responsible for payment of tuition to the university, even though they may be eligible for their employer's tuition reimbursement plan. Students are responsible for making their own arrangements with their employers for reimbursement.

The university withholds the giving of grades, the award of diplomas, the issuance of transcripts and the granting of honorable dismissal to any student whose account is in arrears.

The university accepts MasterCard and VISA for payment of tuition.

Withdrawal

To be eligible for a cancellation of tuition charges, a student must formally notify the registrar of his or her intention to withdraw by completing the university withdrawal form and submitting it to the registrar by mail or in person. The date of the postmark on mailed withdrawal form, or the date of submission on those brought in person, determines the amount of the refund, if any, due the student.

Refunds

The refund policy for graduate students who withdraw from any course or from any program is as follows: 80 percent cancellation of tuition upon formal withdrawal prior to the second regularly scheduled class meeting, 60 percent cancellation of tuition upon formal withdrawal prior to the third regularly scheduled class meeting, 40 percent cancellation of tuition upon formal withdrawal prior to the fourth regularly scheduled class meeting, 20 percent cancellation of tuition upon formal withdrawal prior to the fifth regularly scheduled

class meeting. No cancellation will be made after the fifth regularly scheduled class meeting. Any resulting credit balance will be refunded upon request.

Living Costs

The estimated costs for attending the University of New Haven Graduate School (master's programs) for the 1985-86 academic year are as follows:

Single Student	6 Credits	9 Credits	12 Credits
Tuition and Fees	$ 1,076.	$ 1,610.	$ 2,144.
Books and Supplies	70.	100.	130.
Base Living Costs	2,743.	2,743.	2,743.
Cost per Trimester	$ 3,889.	$ 4,453.	$ 5,017.
Cost per Year (10 months)	$11,667.	$13,359.	$15,051.
Married—No Children			
Tuition and Fees	$ 1,076.	$ 1,610.	$ 2,144.
Books and Supplies	70.	100.	130.
Base Living Costs	3,685.	3,685.	3,685.
Cost per Trimester	$ 4,831.	$ 5,395.	$ 5,959.
Cost per Year (10 months)	$14,493.	$16,185.	$17,877.

Additional family members:
1 Child – $3,517. 2 Children – $5,919. 3 Children – 10,303.

Additional living costs for summer:
Single – $1,646. Children – 1—$704
Married – $2,212. 2—$1,270 3—$2,204.

NOTE: Living costs are based on Estimated BLS Moderate Consumption Budget Standards (20-35 age group).

Financial Assistance

A Graduate and Professional School Financial Aid Service (GAPSFAS) form is required of all students applying for financial assistance (with the exception of fellowships and Guaranteed Student Loans). Applications are available in the Financial Aid Office and the Graduate School office.

The GAPSFAS application must be received by the Financial Aid office no later than July 1 for the fall trimester, November 15 for the winter trimester and February 15 for the spring trimester. Applications are mailed by the student directly to the GAPSFAS processing center. It takes approximately four weeks for the GAPSFAS form to be processed and forwarded to the university.

Students must submit a signed copy of their complete federal income tax return from the most recent tax year to the Financial Aid office. Dependent students must also submit a signed copy of the parents' tax return. If the student or parents did not file an income tax return for

the most recent tax year they must sign a "Non-Tax Filers Form." This form may be obtained by contacting the Financial Aid office.

Financial assistance is available to graduate students in the form of fellowships, assistantships, grants-in-aid, work-study and loans.

Fellowships

Fellowships are competitive awards made to returning students on the basis of outstanding academic achievement. Recommendations for fellowships must be received no later than May 1. Nominations will be sought from the faculty. Students may nominate themselves by writing to the dean of the Graduate School.

Grants-In-Aid

Grants-in-aid are awards based upon demonstrated financial need. Grants are limited in number and in the amounts awarded.

Assistantships

Assistantships are competitive appointments. Full-time graduate assistants work 20 hours per week and receive an hourly compensation as well as partial tuition support. Part-time graduate assistants work between five and ten hours per week for which they receive an hourly compensation but no tuition support. Applications for assistantships should be made by April 15. Applications and further information are available in the Graduate School office.

Work-Study

Part-time employment is also available to graduate students under the federal college work-study program. This program enables students with demonstrated financial need to work on-campus up to 20 hours per week with hourly compensation. Work-study awards are generally limited to full-time students.

Guaranteed Student Loans

A Guaranteed Student Loan (GSL) is a low interest loan available to students who are enrolled on at least a half-time basis. Eligible students may apply for up to $5,000 per academic year. Students must demonstrate financial need in order to qualify. Students begin repayment six months after leaving school.

Applications are available at local banks. Students must complete Section A of the application and submit it to the Financial Aid Office. Upon receipt of the application students will be sent a Guaranteed Student Loan (GSL) Information Pamphlet which must be completed and returned to the Financial Aid Office. Along with the GSL Information Pamphlet students will be required to submit a signed copy of their (and their spouse's) complete federal income tax return for the most recent tax year. Parents' tax returns are also required if the student is a dependent. Applications should be submitted as early as possible to ensure ample processing time.

International students are not eligible for need-based financial assistance since they must certify availability of sufficient funds at their time of entry. Students on academic probation are not eligible for financial aid.

STUDENT SERVICES

Alumni Office

Membership in the UNH Alumni Association is acquired automatically upon graduation. There are currently more than 17,500 members. Annual new growth is more than 1,200 per year.

Alumni are entitled to many of the privileges that students enjoy, such as use of the library, athletic facilities and services of the Career Development office. Soon after graduation, alumni receive an I.D. card which entitles them to these privileges.

Insight, a university publication, is mailed to alumni five times each year. Homecoming, an annual scholarship ball, estate planning seminars and other educational and social events are open to all alumni.

Each fall alumni volunteers play an important role in their annual giving campaign by contacting fellow alumni nationwide seeking support for the university.

Upon graduation, continued association with UNH is also encouraged through special alumni course auditing, charter travel and life insurance programs.

Members of the Alumni Executive Board govern the Alumni Association with the assistance of an Alumni Council of 30 volunteers. The council acts as an advisory board to the university and helps to strengthen alumni relations by promoting communications between alumni and the UNH community.

Athletics

Graduate students are encouraged to make use of the North Campus athletic complex. Facilities include two basketball courts, racquetball court, weight room with universal gym, a multipurpose exercise room, steam room, fully equipped training room, six tennis courts, two softball fields, baseball diamond and combination football-soccer-lacrosse field.

Graduate students are eligible to take part in the intramural competition in touch football, badminton, bowling, three- and five-player basketball, racquetball, softball, tennis, floor hockey and volleyball.

Campus Store

The Campus Store provides all necessary texts, new and used, that are required for courses at the university. It also carries related supplies, greeting cards, imprinted clothing, gifts, candy and a selection of paperbacks, newspapers and periodicals. The Campus Store buys back used texts on a daily basis throughout the year. It also orders class rings and handles film processing for the campus community.

Special arrangements are made for students taking courses at off-campus locations to purchase required books at or near off-campus centers.

Career Development and Off-Campus Employment Office

The Career Development office offers individual and group career counseling; special workshops on resume preparation, interviewing skills and job research techniques; as well as professional career testing services. A large on-campus employment interviewing program is available to graduating students, beginning in October and extending through April every year. The office also has job listings for more than 2,000 positions at any given time. A special relationship between the Connecticut Job Service and the Career Development office has also been established with a computerized job matching system.

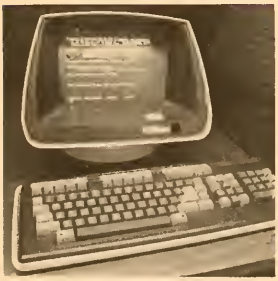
Career Development also assists students with questions regarding alternative career paths and maintains an extensive research library of career information, vocational resources, brochures and annual reports of employers.

Students at all stages of their education as well as alumni are urged to make use of the office's resources in formulating career plans.

The Career Development office produces the career development section for the university newspaper, *Insight*, has a regular career section and calendar in *The News* and circulates a monthly job recruiting newsletter. These publications appear during the first week of every month during the academic year and are also included with the alumni news. Information on career development events, workshops, seminars, recruitment visits, employment outlook for graduates, job listings, job search hints, etc. are included.

A recruitment schedule will be mailed to any member of the university community who wishes it and provides the office with a supply of stamped, self-addressed envelopes for the number of months desired.

Computer Center



The computer center provides a state-of-the-art facility to both the academic and administrative functions at the university. It maintains four independent processing units, each accessible from any given terminal via a network processor.

A Data General MV8000 is used for administrative work; it has a 32-bit processor, 3 megabytes of main memory and a virtual address range of 4 gigabytes with peripheral storage capacity of 1024 megabytes. The operating system is AOS/VS with multiprogramming/multitasking capability, can handle up to 255 concurrent processes and is rated at 1.1 million instructions per second. Currently, there are 32 VDT ports, a 600 lpm printer and several letter-quality printers for word processing users.

Another Data General MV8000 is dedicated to academic support. It has 10 megabytes of main memory, 1400 megabytes of peripheral storage, 72 VDT ports, a 600 lpm printer, and several dot-matrix printers and has the same operating system, attributes and characteristics as the administrative system.

Over 80 terminals are spread throughout four clusters on campus, the largest accumulation of which is located in the newly renovated Echlin Hall; there is also a cluster located in New London to support the Southeastern Connecticut campus activities. Users will find four Tektronix 4105 raster graphics terminals, plotter and printer on the system also.

Software includes Fortran 77, COBOL, APL, BASIC, PL/1, Pascal, RPG, UNIX, C, DBMS, Lisp, Word Processing and a Spreadsheet, plus a graphics charting package. Also SPSS, BMDP, IMSL, Twodepep (finite element analysis), GASP and SLAM II discrete and continuous simulation packages, GKS, IGL, MOVIE BYU (Brigham Young

University) graphics packages, STRESS (civil eng.), SPICE (electrical eng.), MULTINATIONAL and COMPETE (management simulation).

A Data General S140, also academic, is the driver for a MEGATEK vector refresh graphics unit with a 4096 x 4096 screen. The MEGATEK supports keyboard entry, joy-stick, light-pen and tablet input and has 3-D rotation/translation capabilitiess "hard-wired." The S140 is a 16-bit processor, has a 1/2 megabyte main memory, five ports, 24 megabyte hard-disc and an 8-inch floppy disc drive. The operating system is AOS and communicates with the MV8000s through Data General's network support system XODIAC. Users can do development work on the MV8000 taking advantage of the 32-bit processor and packages and "ship" the final product to the S140 for display on the MEGATEK.

Counseling Center

The Counseling Center offers assistance and counseling to students for academic, vocational, personal and marital/relationship problems.

The Counseling Center also offers testing, including academic placement, vocational interest, and personality testing. A controlled testing center for the administration of the Miller Analogies Test (MAT) and for the reporting of scores to graduate schools is maintained by the Counseling Center.

For students who do not know where to go for help with a problem, the Counseling Center serves as a resource for information and direction.

Dining

The university operates a cafeteria in the Student Center which serves a variety of sandwiches, beverages and hot entrees.

The Charger Tavern is open evenings for sandwiches, burgers and soda.

Graduate Student Council

The Graduate Student Council provides an opportunity for graduate students to communicate with the administration to improve all aspects of graduate education at the university. The council schedules a number of extracurricular activities, and all graduate students are encouraged to attend.

Handicapped Services

The Office of Handicapped Services provides guidance and assistance tc students with physical handicaps. The office also coordinates the university's compliance with section 504 of the H.E.W. Rehabilitation Act of 1973. All inquiries and problems concerning barrier-free access to university facilities should be addressed to this office.

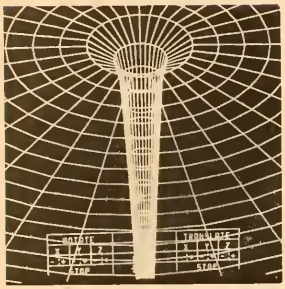
Health Services

The university's Health Services Center, located on the main campus, is open to all students without charge. The center is staffed with registered nurses and a part-time internist. Services available include first aid and examinations for injury and disease. The center also is a resource for information about medical questions and other medical facilities in the community.

Housing/ Residential Life

The Office of Residential Life has information on the availability of on-campus housing and provides a limited file of off-campus accommodations including apartments, houses and private rooms. One campus apartment building has been designated for graduate student, and, therefore, year-round use.

The Institute of Computer Studies



The Institute of Computer Studies (ICS) is a multi-disciplinary academic organization merging people, ideas and resources to promote, enhance and support computer-related programs and activities at UNH. It serves as a catalyst to ensure that a broad, yet interrelated spectrum of high-quality academic programs, both credit and non-credit, are offered. The institute also actively promotes and facilitates departmental and multi-disciplinary development of new programs, enables the university to attract highly qualified faculty, and serves as a focal point for providing education-related services to business and industry.

The University of New Haven has fostered the multi-faceted development of computer science and computer-related courses in each school. An increasing number of faculty and students are becoming interested in some aspect of computing. The institute provides coordination and leadership for the breadth and scope of these activities, including information and guidance about programs, grants, and enlightenment through non-credit courses to the community at large.

The organization was created from the recognition of this growing diversity of computer needs and applications in the university community. In particular, there are seven specific areas which encompass the activities of the institute:

- Support and promote science and applications research.
- Coordinate computer-related activities and long-range planning of computer resources.
- Assist industrial firms in assessing and providing their computer training requirements.
- Assist departments in offering non-credit courses in computer-related areas.
- Develop new programs and courses.
- Advise students on computer-related programs.
- Disseminate information concerning academic computing activities.

The Institute has IBM micro-computers available and maintains a library of more than 1,000 programs for student and faculty use.

International Students

Each year the University of New Haven admits students from many nations. These students, representing more than seventy different nations, bring an international and intercultural dimension to the UNH campus.

The Office of International Student Affairs provides for the special needs and concerns of all international students. The office assists students with government regulations including passport and visa renewal, information on travel in the United States and advises students on academic, social and cultural adjustment. The office also acts as liaison between the student and the university community.

A wide range of programs has been developed including publication of an international newsletter, special orientation events, international banquets and information seminars.

Library

The Marvin K. Peterson Library, named in honor of the former president of the university, was opened in 1974. Adjoining the Main Building, it includes special collection rooms, a music room, archives and spacious reading and reference areas. Study is made convenient by modern research facilities and equipment including microreading stations and micro-reader-printers.

The library has a capacity of more than 300,000 volumes, 115,000 U.S. government documents, approximately 10,000 record albums, numerous corporate annual reports, pamphlet files and microfilm. The library subscribes to 1,400 periodicals, and extensive back issue files are maintained.

The resources of both the New Haven and West Haven public libraries are available to students (non-residents must pay a fee). Under a reciprocal arrangement, University of New Haven students may borrow materials from the libraries of Albertus Magnus College or Quinnipiac College by presenting a valid UNH I.D. card.

Minority Student Affairs

The Office of Minority Affairs represents the needs and interests of minority students at the University of New Haven. The office works closely with minority students to ease the transition into the academic environment while enabling the student to maintain cultural pride and heritage. The office also promotes social and cultural activities which are of special interest to minority students.

Publications

Student publications include *The News*, the university student newspaper; *The Chariot*, the annual yearbook; and *The Noiseless Spider*, a literary publication. Students may volunteer their services on any of the student publications.

Veterans Affairs

The University maintains an Office of Veterans' Affairs with a full-time administrator. Liaison with state and local veterans organizations is maintained on a regular basis. The campus veterans' office administers support services for veterans attending the university.

WNHU Radio

WNHU, the university's FM radio station, is located on the ground floor of the Main Administration Building and operates throughout the year at a frequency of 88.7 MHz at a power of 1700 watts. Staff membership is an extra-curricular activity open to all students. The station has been providing a variety of music, news, public affairs and sports programming to southern Connecticut and eastern Long Island since 1972.

ACADEMIC PROGRAMS

Accounting

Coordinator: Michael J. Rolleri, Assistant Professor of Accounting and Finance, M.B.A., University of Connecticut

The overall objective of the master of science in accounting program is to provide a framework for accounting inquiry, devised in structure and content from the entire scope and process of accounting-information-based economic decision making. The existence of such a frame is intended to provide graduate accountants and professional practitioners an opportunity to share in the development and assessment of issues of accounting interest within a decision-making context. Accordingly, the M.S. program is structured to receive its objective and direction from the overall objective of accounting—providing information useful to the process of economic decision making.

To accomplish this objective, the M.S. program offers a structure of studies designed to provide:

- an examination of the foundations of economic decision making (foundation courses, 18 credits);
- an analysis of the role and usefulness of accounting information for economic decision making (core courses, 18 credits); and
- an opportunity for further selected specialization from the generally recognized branches or divisions of accounting inquiry (electives, 6 credits).

Each student, upon entering the program, will be assigned a faculty adviser who will assist the student throughout the program of study, particularly with the selection of suitable electives. The assigned faculty adviser will also act as, or assist in the selection of, the student's thesis adviser.

Admission Policy

Admission to the program is open to persons holding an undergraduate degree from an accredited institution, preferably, but not exclusively, in accounting or in business administration with a major in accounting. Persons holding other than the above degrees will be required to take a number of selected undergraduate courses. Admission is based primarily on an applicant's undergraduate record; however, the promise of academic success is the essential factor for admission. In support of their applications, persons may submit their scores from the Graduate Management Admissions Test (GMAT). An applicant may be required to take this test.

M.S., Accounting

A total of 42 credits on the graduate level is required for the master of science in accounting. In addition, selected undergraduate courses in accounting may be required of students not holding an undergraduate degree in accounting. Individual programs of study are determined after a conference with the coordinator.

Students are advised to consult the coordinator as soon as possible after matriculating in the program.

See page 85 for the senior professional certificate in accounting.

Thesis

All students are required to write a thesis. The thesis must show ability to organize material in a clear and original manner and present well-reasoned conclusions. Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

Required Courses

Foundation Courses

EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
FI 615	Finance	3
FI 651	Portfolio Management and Capital Market Analysis	3
MG 637	Management	3
QA 604	Probability and Statistics	3

Core Courses

A 616	Taxation for Management	3
A 621	Managerial Accounting *or*	
A 661	Managerial Accounting Seminar	3
A 650	Advanced Accounting Theory	3
A 654	Financial Statements: Reporting and Analysis	3
A 698-9	Thesis I & II	6
	Electives	6
	Total credits	**42**

Elective Courses

Financial Accounting Specialization

A 651	Financial Accounting Seminar	3
A 652	Advanced Auditing	3
A 653	Accounting for the Not-for-Profit Organization	3
FI 649	Security Analysis	3

Managerial Accounting Specialization

A 641	Accounting Information Systems	3
A 642	Operational Auditing	3
A 661	Managerial Accounting Seminar	3
FI 645	Corporate Financial Theory	3

Taxation Specialization

A 601	Federal Income Taxation I	3
A 602	Federal Income Taxation II	3
A 604	Corporate Income Taxation I	3

Business Administration

Coordinator: Franklin B. Sherwood, Professor of Economics, Ph.D., University of Illinois.

The purpose of the M.B.A. program is to educate men and women at the graduate level for careers in business administration as well as other areas requiring a sound grasp of business principles. Vital to this objective is the development of a management perspective enabling students to see the totality of management rather than the narrow concerns of the specialist.

The program has been designed to develop a professional point of view in managing an organization. It further develops the student's ability to utilize the newest analytical and quantitative techniques used in corporate decision making. The student is also exposed to an in-depth analysis of various theories of business and managerial behavior, emphasizing the business organization in relation to its internal and external environment.

Another important aspect of the program is to afford the student an opportunity to develop special skills by concentrating in a given study area.

M.B.A.

A total of 48 credits, with or without a thesis, is required; however, candidates for the M.B.A. are urged to write a thesis as part of their degree requirements. Students electing to write a thesis must register in the appropriate business department. Students will receive six credits for the thesis as a part of the elective credits. The thesis must show ability to organize material in a clear and original manner and present well-reasoned conclusions. Thesis preparation and submission must comply with the Graduate School policy on thesis as well as all specific department requirements.

Students in the M.B.A. program are expected to be familiar, or become familiar, with the use of computers in solving problems. The use of a computer is required in a number of courses in the M.B.A. program.

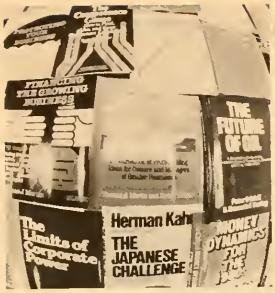
A student must complete the basic core before taking advanced courses in the M.B.A. program. The basic core consists of QA 604, QA 605, and two from among A 621, EC 603, EC 604, EC 625, MG 637 and P 619. FI 615, IB 643, and MK 609 have course prerequisites and cannot be taken until the prerequisites have been met. (Refer to the course descriptions in this catalog.) A student may also be required, unless a waiver is granted, to take A 600, EC 600 and QA 600, which are non-credit graduate level courses.

M.B.A. students who receive "C's" in more than three courses will not be allowed to graduate; instead, they will be advised to repeat one or more of those courses and must achieve a grade of "B" or better.

Required Courses

A 621	Managerial Accounting	3
EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
EC 625	Industrial Relations	3
FI 615	Finance	3

continued



IB 643	International Business	3
MG 637*	Management	3
MK 609	Marketing	3
P 619	Organizational Behavior	3
QA 604	Probability and Statistics	3
QA 605	Advanced Statistics	3
	Electives	15
	Total credits	**48**

* Students in the health care management concentration take MG 640 in place of MG 637.

Waiver Policy

Core courses in the M.B.A. program may be waived on the basis of undergraduate courses taken at accredited institutions. For a course to be waived, a student must send a request (with a description of the course previously taken) to the M.B.A. coordinator who will arrange for the department chairman, or a faculty member acting for the chairman, to act on the waiver request. **Only grades of "B" or better may be used in meeting waiver guidelines. Only required courses may be waived.**

A course that has been waived may not be taken for elective credit. No cancellations of tuition will be issued for courses taken and subsequently waived.

Waiver Guidelines

Course	Waiver Requirements
A 600	6 credit hours of accounting with a grade of "B" or better.
A 621	12 credit hours of accounting, including at least 3 credit hours of managerial accounting.
EC 600	3 credit hours of economics.
EC 603	EC 340 or an intermediate microeconomics course.
EC 604	EC 341 or an intermediate macroeconomics course.
EC 625	A course in labor economics and/or industrial relations.
FI 615	Undergraduate degree in finance or 12 credit hours of which at least 6 credit hours are in financial management.
IB 643	6 credit hours of international business, international marketing, international finance, or international economics.
MG 637	9 credit hours of management courses from a four-year accredited institution.
MK 609	9 credit hours of marketing, from a four-year accredited institution, including 3 credit hours of marketing management.
P 619	12 credit hours in psychology, with at least 6 credit hours primarily concerned with topics such as attitude development and change, group processes, industrial psychology, organizational conflict and supervisory behavior.
QA 600	6 credit hours of quantitative techniques or mathematics.
QA 604	QA 216 or an intermediate level probability and statistics course.
QA 605	QA 333 or its equivalent.

Concentrations

Within the M.B.A. program students may use the elective credits to concentrate their studies in a specific area. The available concentrations and their course requirements are listed below. With the permission of the adviser, students may substitute other appropriate courses for those listed as part of the concentration. It is highly recommended, but not required, that concentrations be indicated on the application for admission to the M.B.A. program, or as soon as possible thereafter.

Concentration in Accounting

Adviser: Robert McDonald, Associate Professor of Accounting and Finance, M.B.A., New York University

The concentration in the accounting program is recommended to those M.B.A. students who desire an accounting specialization but do not have an undergraduate accounting background. Students who wish to take the Certified Public Accounting examination or the Certified Management Accounting examination should enroll in the M.S. in accounting program.

A 616	Taxation for Management	3
A 650	Advanced Accounting Theory	3
A 661	Managerial Accounting Seminar	3
	Plus any accounting or taxation elective	3
	Total credits	**12**

See page 85 for the senior professional certificate in accounting.

Concentration in Computer and Information Science

Adviser: Roger G. Frey, Professor of Industrial Engineering and Computer Science, Ph.D., Yale University

This concentration provides coverage of programming and systems with a business systems emphasis, preparing the student to carry out systems studies and to interact knowledgeably with programmers and computer systems specialists.

IE 602	Computing Fundamentals - required for students who have not had computer programming.	
Options:		
1.)		
IE 603C	COBOL Programming	3
IE 605	Advanced Business Programming	3
2.)		
IE 603F	FORTRAN Programming	3
IE 606	Advanced Technical Progamming	3
3.)		
IE 603P	Pascal Programming	3
IE 648	Data Structures	3
	Plus two of the following:	
IE 604	Management Systems	3
IE 608	Assembly Language	3

IE 610	Computer Systems Analysis and Selection	3
IE 658	Database Systems*	3
IE 680	Software Engineering*	3
	Total credits	**12**

* Prerequisites are IE 603P and IE 648 (option 3)

See page 87 for the senior professional certificate in computer and information science.

Concentration in Dietetics Administration

See page 52 for program description and content.

Concentration in Economic Forecasting

Adviser: William Pan, Professor of Economics and Quantitative Analysis, Ph.D., Columbia University

The concentration is designed to provide preparation for careers in forecasting and modeling. Students enrolled in this program are expected to have knowledge of computer use, especially FORTRAN.

EC 633	Managerial Economics	3
EC 653	Econometrics	3
QA 607	Forecasting	3
	Plus one of the following:	
EC 645	Seminar in Macroeconomic Policy	3
EC 665	Urban and Regional Economic Development	3
IE 603F	FORTRAN Programming	3
IE 606	Advanced Technical Programming	3
MK 639	Marketing Research and Information Systems	3
	Total credits	**12**

See page 87 for the senior professional certificate in computer and information science.

Concentration in Finance

Adviser: Robert Rainish, Associate Professor of Finance, Ph.D., City University of New York

The goal of the finance concentration is to prepare individuals for the expanding sector of financial services and modern corporate financial management. The program stresses the understanding of the conceptual foundations of finance and uses of analytical techniques, with special emphasis on the implications and applications of the financial concepts. It is *strongly recommended* that the individual contacts the finance coordinator as early as possible to program the appropriate sequence of courses.

Finance concentration students may take *either* IB 643 (preferred) or EC 625 plus 18 credits of electives with the adviser's approval.

FI 617	Financial Institutions and Capital Markets	3
FI 645	Corporate Financial Theory	3
FI 651	Portfolio Management and Capital Market Analysis	3
	Plus three of the following:*	
A 654	Financial Statements: Reporting and Analysis	3
FI 619	Monetary and Central Banking Policy	3
FI 620	Working Capital Management and Planning	3
FI 649	Security Analysis	3
FI 655	Speculative Market Analysis	3
FI 661	Real Estate: Principles and Practices	3
FI 670	Selected Topics	3
FI 698	Thesis I*	3
FI 699	Thesis II*	3
	Total credits	**18**

*Candidates who elect not to write a thesis must substitute with written approval two elective courses. Elective courses are to be chosen in consultation with a finance adviser.

See page 88 for the senior professional certificate in finance.

Concentration in Health Care Management

Adviser: Charles Coleman, Assistant Professor of Public Administration, M.P.A., West Virginia University

The concentration in health care management is designed for those individuals currently in or those who anticipate a career in health care management. Courses are designed to provide students with the conceptual and practical skills necessary for the management of a health care organization.

MG 640	Management of Health Care Organizations (this course to be taken in place of MG 637 in the core of the M.B.A. program)	3
	Plus four of the following:	
PA 641	Financial Management of Health Care Organizations	3
PA 642	Health Care Delivery Systems	3
PA 643	Health and Institutional Planning	3
PA 644	Administration of Programs and Services for the Aged	3
PA 645	Health Care Economics and Finance	3
PA 646	Organization and Management of Long-Term Care Facilities	3
PA 670	Selected Topics	3
PS 635	Law and Public Health	3
	Total credits	**12**

Concentration in Hotel and Restaurant Management

See page 64 for program description and content.

Concentration in Human Resources Management

Adviser: Wilfred Harricharan, Professor of Management, Ph.D., Cornell University

This concentration is designed for the personnel professional or the individual in another field who aspires to work in personnel. It provides an overview of the field and an opportunity to study various subfunctions, such as training, industrial relations, or compensation, in greater depth.

MG 645	Management of Human Resources	3
MG 678	Personnel Management Seminar	3
	Plus two of the following:	
EC 627	Economics of Labor Relations	3
EC 687	Collective Bargaining	3
MG 664	Organizational Effectiveness	3
MG 665	Compensation Administration	3
MG 679	Industrial Relations Seminar	3
P 627	Attitude and Opinion Measurement	3
P 628	The Interview	3
P 641	Personnel Development and Training	3
	Total credits	**12**

See page 89 for the senior professional certificate in human resources management.

Concentration in International Business

Adviser: Michael Kublin, Assistant Professor of Marketing, Ph.D., New York University

This concentration is designed to prepare managers to deal with the latest methods of analysis related to international business. These include the basic techniques and skills, such as adapting to new political and cultural environments, which are not normally covered by traditional courses. Students are strongly recommended to contact the international business adviser as early as possible to program the appropriate sequence of courses.

MG 660	Comparative Management	3
IB 644	International Trade and Finance	3
	Plus two of the following:	
EC 641	International Economics	3
IB 645	Comparative International Business Environments	3
IB 651	International Marketing	3
	Total credits	**12**

See page 90 for the senior professional certificate in international business.

Concentration in Logistics

Adviser: Alexis N. Sommers, Professor of Industrial Engineering, Ph.D., Purdue University

Although an old field of study traditionally associated with the military, logistics has emerged as an important management specialty in organizations dealing with complex systems and large, multi-phase projects. Logistics is the modern science of making sure that needs are met when they occur, at a reasonable resource expenditure. This necessitates customer requirements planning, design-to-cost concepts, optimal system acquisition, life-cycle analysis, transportation and distribution and field support networks. Especially in defense industries, logistics is essential in designing, acquiring and introducing new weapons systems, new communication and supply systems and advanced production and distribution concepts. The logistics concentration provides a basic working knowledge of the discipline, and gives a background for certification in the area.

LG 660	Logistics Technology and Management	3
	Plus three of the following:	
IE 615	Transportation and Distribution	3
LG 663	Logistics Management in the System Acquisition Process	3
LG 665	Integrated Logistics Support Analysis	3
LG 669	Life Cycle Cost Analysis	3
MG 638	Cost Benefit Management	3
	Total credits	**12**

Concentration in Management and Organization

Adviser: Wilfred Harricharan, Professor of Management, Ph.D., Cornell University

The concentration in management and organization is designed to develop students' conceptual knowledge and skills in formulating corporate strategy. The program focuses on concepts and processes useful in relation to general management and functional responsibilities in coordinating and directing the organizational effort in our ever changing economic environment.

	Any four of the following:	
MG 638	Cost Benefit Management	3
MG 645	Human Resources Management	3
MG 660	Comparative Management	3
MG 661	Development of Management Thought	3
MG 662	Organization Theory	3
MG 663	Leadership in Organizations	3
MG 664	Organizational Effectiveness	3
MG 669	Business Policy and Strategy	3
MG 675	Readings in Management	3
MG 680	Current Topics in Business Administration	3
	Total credits	**12**

See page 88 for the senior professional certificate in general management.

Concentration in Management Science

Adviser: John B. Moore, Associate Professor of Economics and Quantitative Analysis, Ph.D., Southern Illinois University

This concentration gives the student the quantitative knowledge and skills needed by managers in changing technologically-oriented organizations. It reinforces and improves the manager's information processing and decision-making skills.

IE 601	Introduction to Operations Research/ Management Science	3
IE 604	Management Systems	3
QA 606	Advanced Management Science	3
QA 607	Forecasting	3
	Total credits	**12**

See page 88 for the senior professional certificate in general management.

Concentration in Marketing

Adviser: Wilfred Harricharan, Professor of Management, Ph.D., Cornell University.

The concentration in marketing allows the student to develop analytical skills and a deeper understanding of marketing phenomena. Specific emphasis is given to the development of content knowledge and skills necessary for operating managers of the marketing function.

MK 639	Marketing Research and Information Systems	3
MK 641	Marketing Management	3
	Plus two of the following:	
IB 651	International Marketing	3
MG 669	Business Policy and Srategy	3
MK 616	Buyer Behavior	3
MK 643	Product Management	3
MK 644	Consumerism	3
MK 645	Distribution Strategy	3
MK 680	Marketing Workshop	3
	Total credits	**12**

See page 90 for the senior professonal certificate in marketing.

Concentration in Media in Business

Adviser: Jean Bodon, Assistant Professor of Communication, Ph.D., Florida State University

The proper use of media is one of the roads to success for any business, large or small. Professionals with media skills can be found in advertising, marketing, personnel and management positions in just about all kinds of business entities. This program gives the student those skills, theories and techniques, desirable and necessary within the corporate environment. Professionalism is the focus of the program with an emphasis on media in terms of audio-visual use, media

presentation and training. The student will be introduced to different media and all stages of production, from script to transparency to video. As a final course project, the student will link up with a corporate sponsor to design and produce a specific media presentation.

CO 601	Basics of Business Media Production Techniques	3
CO 605	Planning Audio Visual Systems for Business	3
CO 609	Scripting the Media Presentation	3
CO 613	Media Presentations for Business	3
	Total credits	**12**

See page 91 for the senior professional certificate in media in business.

Concentration in Operations Research

Adviser: Ira H. Kleinfeld, Professor of Industrial Engineering, Eng. Sc.D., Columbia University

Operations research involves the application of quantitative methods to problem solving in business and industry and in matters of public policy. These courses cover several of the most widely-used techniques of operations research.

IE 607	Probability Theory	3
IE 621	Linear Programming	3
IE 622	Queuing Theory	3
IE 686	Inventory Analysis	3
	Total credits	**12**

Business Administration/ Industrial Engineering Dual Degree Program

Coordinator: Ira H. Kleinfeld, Professor of Industrial Engineering, Eng. Sc.D., Columbia University

MBA Adviser: Franklin Sherwood, Professor of Economics, Ph.D., University of Illinois

The Graduate School has always encouraged inter-disciplinary studies. To foster a broader expertise in the areas of business administration and industrial engineering, a student can earn both by successfully completing this dual degree program.

The program is intended for students with undergraduate engineering or technical degrees from schools accredited by the Accreditation Board for Engineering and Technology. Applicants with

degrees in fields other than industrial engineering will be required to take a number of undergraduate courses or otherwise demonstrate proficiency in several areas normally included in an industrial engineering program.

M.B.A./M.S., Industrial Engineering Dual Degree

The M.B.A./M.S.I.E. program consists of 72 credit hours. Up to 12 of these credit hours may be waived on the basis of undergraduate course work, leaving a minimum requirement of 60 credit hours. All waivers must be approved in writing by the appropriate department and are conditional upon subsequent academic performance. Graduate credit may be transferred from other accredited institutions subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

In all cases, the residency requirement for the two degrees shall be 60 credit hours completed at the University of New Haven. In addition, a minimum of 21 credit hours must be earned in business courses and a minimum of 21 credit hours must be earned in engineering courses.

Required Courses

A 621	Managerial Accounting	3
EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
EC 625	Industrial Relations	3
FI 615	Finance	3
IB 643	International Business	3
MG 637	Management	3
MK 609	Marketing	3
P 619	Organizational Behavior, *or*	
P 620	Industrial Psychology	3
QA 605	Advanced Statistics	3
IE 601	Introduction to Operations Research/ Management Science	3
IE 603F	FORTRAN Programming	3
IE 607	Probability Theory	3
IE 623	Decision Analysis	3
IE 624	Quality Analysis	3
IE 651	Human Engineering I	3
IE 655	Manufacturing Analysis	3
IE 681	System Simulation	3
IE 686	Inventory Analysis	3
IE 688	Design of Experiments	3
	Electives (Business)	3
	Electives (Unrestricted)	9
	Total credits	**72**

Business Administration/ Public Administration Dual Degree Program

Coordinator: Charles Coleman, Assistant Professor of Public Administration, M.P.A., West Virginia University

M.B.A. Adviser: Franklin Sherwood, Professor of Economics, Ph.D., University of Illinois

The M.B.A./M.P.A. dual degree program is designed for those students whose interests or career objectives are focused at both the public and private sectors of the economy. The program broadly stresses the use of management skills and analytic techniques applied to business, industrial, governmental and not-for-profit organizations.

M.B.A./M.P.A. Dual Degree

The M.B.A./M.P.A. program consists of 72 credit hours. Up to 12 of these credit hours may be waived on the basis of undergraduate course work, leaving a minimum requirement of 60 credit hours. All waivers must be approved in writing by the appropriate department and are conditional upon subsequent academic performance.

Graduate credit may be transferred from other accredited institutions subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog. In all cases, the residence requirement for the two degrees shall be 60 credit hours completed at the University of New Haven. In addition, a minimum of 21 credit hours must be earned in business courses and a minimum of 21 credit hours must be earned in public administration courses..

See page 92 for the senior professional certificate in public management.

Thesis

All students must write a thesis. The thesis must show ability to organize material in a clear and original manner and present well-reasoned conclusions.

Thesis preparation and submission must comply with Graduate School policy on theses as well as all specific department requirements.

Required Courses

A 621	Managerial Accounting	3
EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis, *or*	
EC 608	Economics for Public Administrators	3
EC 625	Industrial Relations	3
FI 615	Finance	3
IB 643	International Business	3
MG 637	Management	3
MK 609	Marketing	3
PA 601	Principles of Public Administration	3

PA 602	Public Policy Formulation and Implementation	3
PA 604	Communities and Social Change	3
PA 611	Research Methods in Public Administration	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
PA 625	Administrative Behavior, *or*	
P 619	Organizational Behavior	3
PA 632	Public Finance and Budgeting	3
QA 604	Probability and Statistics	3
QA 605	Advanced Statistics	3
	Electives (Public Administration)	9
	Electives (Business)	6
	Thesis I & II	6
	Total credits	**72**

Community Psychology

Coordinator: Robert J. Hoffnung, Professor of Psychology, Ph.D., University of Cincinatti

Community psychology applies the theories and techniques of psychology and related social sciences to understanding and modifying the complex social forces which influence individual and community well being.

Accordingly, the M.A. program in community psychology provides broad training in current approaches to preventing and treating psychological distress at the level of social institutions, organizations and groups rather than just the individual. Methods of community analysis, consultation and crisis intervention are considered as well as program development, administration and evaluation.

Classroom study is closely integrated with supervised field experiences in a variety of human service organizations and community settings.

Graduates are able to assume positions of responsibility in a broad range of human service settings, such as mental health programs, youth service bureaus, community houses, child development programs, municipal services, halfway houses, senior citizen centers, private agencies, health care systems and community action programs.

Admission Policy

An undergraduate degree from an accredited institution is required. A major in psychology is preferred but not required. However, all students are expected to have at least an introductory level understanding of psychological concepts, principles and methods before entering. Students who have not had an undergraduate course in statistical methods will be required to take one before entry into P 609. Related work experience as well as academic performance is considered in admission decisions.

Along with the application materials required by the Graduate School, applicants must submit a program questionnaire. Applicants

may be required to submit scores from either the Miller Analogies Test or the Graduate Record Examinations Aptitude Test, at the discretion of the department. Students intending to go on for further graduate work are strongly encouraged to take the GRE early in the first year.

Field Work and Seminars

Supervised field experience in a variety of settings is a major vehicle through which students in the program develop applied skills. Students plan their field work activities in collaboration with both the program's field training director and their supervisor from the field setting. Field experience is provided in the areas of individual intervention, consultation, and systems intervention.

In addition, three separate seminar courses provide a theoretical and research framework within which the development of these applied skills can be examined and discussed. These seminars enable students to conceptualize the issues they encounter in the field within a broader context.

Students with a year or more of appropriate full-time human service experience in a particular field work area will be allowed to substitute an elective course for that field work, contingent upon the approval of the community psychology program coordinator.

Thesis

Students may elect to write a thesis as part of their program of study. The thesis must show ability to organize materials in a clear and original manner and present well-reasoned conclusions. A thesis is strongly recommended for students wishing to pursue doctoral training after graduation. Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

M.A., Community Psychology

The program consists of 42 credit hours, 15 of which comprise the core curriculum completed by all students and 18 of which constitute one of two areas of concentration. Typically, students complete most of the core requirements before focusing on their concentration.

Required Courses

P 605	Survey of Community Psychology	3
P 609	Research Methods	3
P 610	Program Evaluation	3
P 612	Consultation Seminar	3
P 615	Consultation Field Work	3
	Electives	9
	Concentration	18
	Total credits	**42**

See page 86 for the senior professional certificate in applications of psychology.

Concentration in Community-Clinical

The community-clinical concentration is designed to prepare students for careers in clinical, mental health and related human service settings. Direct work with individuals within the social and

community contexts in which they live as well as consultation, social problem analysis and prevention techniques and strategies are stressed.

P 611	Individual Intervention Seminar	3
P 614	Individual Intervention Field Work	3
	Plus four of the following:	
P 625	Life Span Developmental Psychology	3
P 628	The Interview	3
P 629	Introduction to Psychotherapy and Counseling	3
P 632	Group Dynamics and Group Treatment	3
P 634	Personality Assessment	3
P 636	Abnormal Psychology	3
	Total credits	**18**

Concentration in Program Development

The program development concentration is designed to prepare students for careers which emphasize the administration of traditional and non-traditional programs and services. The concentration involves planning, development and evaluation of innovative approaches to treatment and prevention at the community, organizational and social systems level in the public and private human service sectors as well as in business and industry.

P 613	Systems Intervention Seminar	3
P 616	Systems Intervention Field Work	3
	Plus four of the following:	
P 619	Organizational Behavior	3
P 628	The Interview	3
P 631	Social Psychology	3
P 642	Organizational Change and Development	3
PA 604	Communities and Social Change	3
PA 641	Financial Management of Health Care Organizations	3
PA 643	Health and Institutional Planning	3
	Total credits	**18**

Computer and Information Science

Coordinator: Roger G. Frey, Professor, Industrial Engineering & Computer Science, Ph.D. Yale University

This program provides advanced professional training in computer and information science, and offers to students a diversity of subject matter through its concentrations as well as through a wide range of course offerings. Its broad scope recognizes the rapid development of computing disciplines and applications, and allows students to prepare

for this. The program can be used to enter or advance in the computing profession or an allied field, along a variety of career paths. It may also be used to prepare for further graduate study.

M.S., Computer and Information Science

The program consists of 48 credit hours of course work. This may be reduced in some situations through waivers or transfer credits, in conformity with Graduate School and program policies. The six core courses are eligible for waiver; concentration courses and electives may not be waived but transfer credit and substitution may apply.

Candidates needing more background may be advised or required to take additional courses. In particular, IE 602, Computing Fundamentals, is often used for this purpose; this course may be counted as a free elective within the program. Other courses added in this manner normally will have to be taken in addition to the program requirements.

In general, students are free to select their own courses in conformity with program requirements and course prerequisites which should be followed carefully. Program worksheets are available from the Graduate Records office.

The Pascal programming language will be the common teaching language used throughout the program. Use of, and programming in, Pascal may be required in all but the most introductory courses.

A core of six courses is required of all students in the program. Five more courses are taken in the student's concentration. The remaining five courses in the program are electives: three restricted electives and two free electives.

All students will be in one of the program's three concentrations. The student must take courses that will satisfy a concentration, but a formal declaration of concentration is not required until the student petitions to graduate.

The graduate coordinator will evaluate the content of special topics, independent study, seminar project courses and new course offerings and will maintain a current list of such computing-related courses suitable as restricted electives in the program.

Free elective courses are taken from the set of graduate courses at the University of New Haven and should bear a reasonable relation to the student's overall program and career objectives.

Each concentration has a Language Group of programming language courses. The graduate coordinator will determine which new courses or current topics offerings are appropriate for a Language Group.

Required Courses

IE 603P	Pascal Programming	3
IE 608	Assembly Language	3
IE 648	Data Structures	3
IE 658	Database Systems	3
IE 680	Software Engineering	3
M 610	Fundamentals of Calculus and Linear Algebra	3
	Concentration	15
	Restricted Electives	9
	Free Electives	6
	Total credits	**48**

Restricted electives include courses in any of the concentrations, as well as:

EE 608	Computer Aided Design
EE 640	Computer Engineering I
EE 641	Computer Engineering II
EE 670	Special Topics—Electrical Engineering*
IE 614	Data Information Systems
IE 621	Linear Programming
IE 623	Decision Analysis
IE 670	Current Topics in Computer and Information Science*
IE 685	Theory of Optimization
IE 690	Seminar Project*
IE 695	Independent Study I*
IE 696	Independent Study II*
M 632	Methods of Complex Analysis
M 670	Special Topics in Mathematics

*Graduate coordinator must approve these courses for use as restricted electives.

Concentrations

Concentration in Applications Software

The concentration in applications software focuses on skills needed for the design and implementation of software for the end user in a broad range of application areas.

Two courses from the Applications Language Group: 6

IE 603C	COBOL Programming
IE 603F	FORTRAN Programming
IE 603S	LISP Programming
IE 605	Advanced Business Programming
IE 606	Advanced Technical Programming
	Plus one of the following courses: 3
IE 682	Compiler Design
IE 684	Operating Systems
	Plus one of the following courses: 3
IE 607	Probability Theory
IE 609	Descriptive and Inferential Statistics
M 620	Numerical Analysis
M 624	Applied Mathematics
	Plus one of the following courses: 3
IE 660	Artificial Intelligence
IE 662	Computer Graphics
IE 681	System Simulation
	Total credits **15**

Concentration in Management Information Systems

The concentration in management information systems is designed primarily for data system managers, systems analysts and others involved with the integration, management or executive oversight of computing systems in organizations.

One course from the MIS Language Group 3

IE 603C	COBOL Programing
IE 603F	FORTRAN Programming
IE 605	Advanced Business Programming
IE 606	Advanced Technical Programming

Plus the following:

IE 601	Introduction to Operations Research/ Management Science	3
IE 604	Management Systems	3
IE 607	Probability Theory	3
IE 610	Computer Systems Analysis and Selection	3
	Total credits	**15**

Concentration in Systems Software

The concentration in systems software is intended for the individual interested in the software which comprises the computing system itself and those programs closely associated with the system, such as language translators.

One course from the Systems Language Group 3

IE 603F	FORTRAN Programming
IE 606	Advanced Technical Programming

Plus one of the following: 3

IE 601	Introduction to Operations Research/ Management Science
IE 622	Queuing Theory

Plus one of the following: 3

EE 615	Introduction to Computer Logic
EE 658	Microprocessors—Theory and Applications

Plus the following:

IE 682	Compiler Design	3
IE 684	Operating Systems	3
	Total credits	**15**

Criminal Justice

Coordinator: David Maxwell, Assistant Professor of Criminal Justice, M.A., John Jay College; J.D., University of Miami

A key objective of the master of science in criminal justice program is the training and education of men and women planning careers in the field of criminal justice as well as the advanced training and education of those who staff the agencies and institutions of the criminal justice system.

The program stresses a broad understanding of the social and behavioral sciences, the institutions of the criminal justice system and the development of methodological tools and skills.

The courses in the area of social and behavioral science stress the theories of the behavior of man in a social order and the sanctions imposed by different societies to control the social behavior of their members. Courses in the area of criminal justice institutions stress the study of the existing system from the police, through the courts, the penitentiaries and the system of probation and parole. The methodological courses expose students to the tools of research and analysis and the contribution of systems analysis to the efficient administration of the criminal justice system.

M.S., Criminal Justice

A total of 45 credit hours is required of candidates for the degree of master of science of criminal justice.

Candidates must complete the core curriculum. After consultation with an adviser, students select electives from approved courses in the departments of criminal justice, economics, psychology, political science, sociology, industrial engineering and management science.

The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Applicants are also required to complete a questionnaire to be submitted directly to the Graduate School.

Thesis

Students electing to write a thesis must register for thesis credit with the department. The thesis must show ability to organize material in a clear and original manner and present well-reasoned conclusions. Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

Required Courses*

CJ 601	Seminar in Interpersonal Relations	3
CJ 605	Social Deviance	3
CJ 610	Administration of Justice	3
CJ 628	Introduction to Systems Theory	3
CJ 635	Statistics in the Public Sector	3
CJ 637	Contemporary Issues in Criminal Justice	3
PA 611	Research Methods in Public Administration	3
	Electives (Approved)	24
	Total credits	**45**

*As an alternative to the program listed above a student may select one of the following three concentrations.

Concentrations

There are three concentrations that a student may choose to elect—correctional counseling, criminal justice management and security management.

Concentration in Correctional Counseling

This program, offered jointly between the criminal justice program and the department of psychology, is designed for those individuals currently in correctional counseling positions or those who anticipate a career in correctional counseling.

CJ 601	Seminar in Interpersonal Relations	3
CJ 610	Administration of Justice	3
CJ 622	Learning Theory: Applications in Criminal Justice	3
CJ 624	Group Process in Criminal Justice	3
CJ 693	Criminal Justice Internship I	3
P 605	Survey of Community Psychology	3
P 611	Individual Intervention Seminar	3
P 628	The Interview	3
P 629	Introduction to Psychotherapy and Counseling	3
	Electives*—Criminal Justice	9
	Electives*—Psychology	9
	Total credits	**45**

*Electives will be chosen by consent of adviser. Students may be required to take CJ 694 – Internship II, depending upon experience, ability and background.

Concentration in Criminal Justice Management

This concentration is designed for those individuals wishing to pursue a career in the management of a criminal justice agency. Courses are offered jointly between the criminal justice and the public administration programs.

CJ 601	Seminar in Interpersonal Relations	3
CJ 610	Administration of Justice	3
CJ 612	Criminal Justice Management	3
CJ 628	Introduction to Systems Theory	3
CJ 635	Statistics in the Public Sector	3
CJ 655	Bureaucratic Organization of Criminal Justice	3
PA 602	Public Policy Formulation and Implementation	3
PA 604	Communities and Social Change	3
PA 611	Research Methods in Public Administration	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
PA 632	Public Finance and Budgeting	3
	Electives (Approved)	12
	Total credits	**45**

Concentration in Security Management

This concentration is designed for those individuals who are pursuing or wish to pursue careers in security management within business or industry. Course work stresses a broad interaction between security, business administration, fire sciences and criminal justice.

CJ 601	Seminar in Interpersonal Relations	3
CJ 605	Social Deviance	3
CJ 612	Criminal Justice Management	3
CJ 614	Survey of Forensic Science	3
CJ 669	Dynamics, Evaluation and Prevention of Structural Fires	3

CJ 675	Private Security Law	3
CJ 676	Security Management Seminar	3
CJ 677	Private Security in Modern Society	3
SH 602	Safety Organization and Administration	3
	Electives (Approved)	12
	Plus two of the following:	
CJ 637	Contemporary Issues in Criminal Justice	3
EC 625	Industrial Relations	3
EC 687	Collective Bargaining	3
PA 625	Administrative Behavior	3
	Total credits	**45**

Dietetics Administration (M.B.A.)

Adviser: Margaret O'Donnell, Assistant Professor of Dietetics & Institutional Management, M.A., New York University

The dietetics administration program, a concentration in the master of business administration degree, prepares dietitians to become effective professional managers in health care.

Attaining top managerial positions in health-related fields becomes more difficult each day with competition coming from many different directions. Role studies have noted that dietitians, while competently-trained specialists in their field, have previously avoided acquiring power in the decision-making processes of their organizations.

This concentration has been designed to:

- expand awareness of organizational structure and of information sharing within an organization.
- underscore the importance of those financial, economic, marketing and statistical factors which contribute to the success of a health care organization; and to prepare the M.B.A. candidate for a career in dietetics education

Career Opportunities

Careers in dietetics offer many opportunities for upward mobility and personal and financial rewards. Positions may be found in hospitals, nursing homes, community programs, universities, restaurants, food service companies, private industry, sports nutrition, consulting and private practice.

For those students who have completed a B.S. degree in nutrition, dietetics, home economics or other related fields, this program offers the opportunity to earn an M.B.A. degree and, with six months experience in the field of dietetics under the supervision of a registered dietitian, eligibility to take the registration examination given by the American Dietetic Association.

For those who are registered dietitians, this program offers the opportunity to become better administrators with a broad understanding of the present marketing, accounting and managerial practices needed by competent managers.

Undergraduate Course Requirements

Candidates who have not completed an undergraduate degree program in dietetics, nutrition, biology, home economics, or a related major will be required to complete up to 30 credits of undergraduate dietetics related courses. These students will be permitted to complete the required undergraduate courses while satisfying the requirements for the M.B.A. The additional course work will depend upon background in the field, work experience and related course work completed.

Each student's undergraduate transcript will be evaluated for compliance with the minimum academic requirements of the American Dietetic Association's Plan IV.

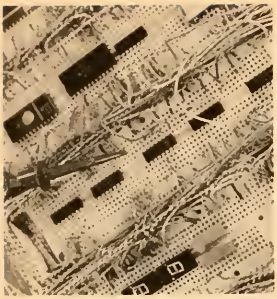
Core Courses

A graduate student in the concentration of dietetics administration is required to complete 48 credit hours.

In addition to the previously stated M.B.A. required courses *with the exception of IB 643 and QA 605* (see page 33), the dietetics administration concentrations consists of:

DI 635	Applied Dietetics for Health Care Professionals	3
DI 690	Research in Dietetics and Institutional Management	3
HR 610	Content Seminar in Hotel and Restaurant Management, Dietetics and Tourism Administration	3
HR 655	Development of Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 670	Special Topics in Hotel, Restaurant, Dietetics and Tourism Operations	3
DI 698	Thesis I* *and*	
DI 699	Thesis II,	
	or	
SC 615	Life Cycle Nutrition, *and*	
SC 616	Geriatric and Advanced Nutrition	6
	Total core credits	**21**

* A master's thesis is recommended, but not required.



Electrical Engineering

Coordinator: Gerald J. Kirwin, Professor of Electrical Engineering, Ph.D., Syracuse University

This program is intended to meet the needs of professionally employed engineers and scientists for academic work beyond the baccalaureate level. It has been designed to deepen the understanding of modern analysis and synthesis techniques as they apply to engineering design. A major goal of this program is to provide a discussion of the characteristics of the latest devices and systems and of their applications in current engineering design. Both analytical and numerical procedures are developed with particular emphasis on the use of computers for problem solving and as elements in larger systems.

The core courses contain advanced methods of analysis and design which are of common interest to electrical engineers. Each student completes a program by electing courses that are particularly suited to current personal interests. In general the elective courses must be courses from those listed below. Early in the program the student, with the help and approval of an adviser, prepares a detailed plan ensuring an overall educational experience that is integrated and logical. All decisions regarding both core and elective courses are subject to the final approval of the student's adviser.

Admission Policy

Admission to the program is open to persons holding an undergraduate engineering degree from an institution accredited by the Accreditation Board for Engineering and Technology. Though admission decisions are based primarily on an applicant's undergraduate record, the promise of academic success is the essential factor for admission.

M.S., Electrical Engineering

A minimum total of 39 credit hours must be completed to earn the master of science in electrical engineering degree. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Thesis

There is no specific thesis requirement for the master of science in electrical engineering. However, students are encouraged to submit a thesis proposal covering applied research in an area of mutual interest to the student and a supervising member of the faculty. If a proposal shows promise of yielding a worthwhile contribution to the professional objectives of the student, and a faculty member accepts the role of supervisor, the student may embark upon the research and earn six elective credits. Students electing to do a thesis project will be expected to make an oral presentation of the results of the project. Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

Required Courses

EE 603	Discrete and Continuous Systems I	3
EE 604	Discrete and Continuous Systems II	3
EE 630	Electronic Instrumentation I	3
EE 640	Computer Engineering I	3
EE 650	Random Signal Analysis	3
IE 685	Theory of Optimization	3
M 620	Numerical Analysis	3
M 624	Applied Mathematics	3
M 632	Methods of Complex Analysis	3
	Electives (Approved)	12
	Total credits	**39**

Elective Courses

EE 605	Modern Control Systems	3
EE 608	Computer Aided Design	3
EE 631	Electronic Instrumentation II	3
EE 634	Digital Signal Processing I	3
EE 635	Digital Signal Processing II	3
EE 641	Computer Engineering II	3
EE 645	Power Systems Engineering I	3
EE 646	Power Systems Engineering II	3
EE 658	Microprocessors—Theory and Applications	3
EE 670	Special Topics—Electrical Engineering	3
EE 695	Independent Study I	3
EE 696	Independent Study II	3
EE 698-9	Thesis I and II	6

Environmental Engineering

Coordinator: George R. Carson, Professor of Civil Engineering, M.S.C.E., Columbia University

The environmental engineering program is intended to meet the needs of engineers for academic work beyond the baccalaureate level. The program is interdisciplinary in nature and incorporates both engineering and science courses.

There exists today a need for a substantial number of engineers knowledgeable in environmental areas. Industries that are required to control the pollution of air and water need environmental engineers. Federal, state and local governments must hire employees and consultants to assist them in environmental matters. Other new vistas will undoubtedly open to the environmental engineers in the future. Environmental engineers will be in increasingly greater demand with the continually increasing problems of pollution.

This program provides the advanced educational skills necessary to meet the ever increasing need for engineers with an environmental background. It is designed to offer vigorous, professionally oriented, engineering and science courses in the areas of solid waste, water and air pollution.

Most of the program consists of a required sequence of courses which each student must complete. The balance of the program consists of courses selected from the list of electives. Selection will be based on the student's principal field of interest. Each student, upon entering this program, will be assigned a faculty adviser who will consult with the student during the program of study and will assist the student in selection of suitable electives. The faculty adviser will also act as the student's research project adviser.

Admission Policy

Candidates for admission in the environmental engineering program are expected to have an engineering degree from an institution accredited by the Accreditation Board for Engineering and Technology.

M.S., Environmental Engineering

A total of 39 credit hours must be completed to earn the master of science in environmental engineering degree. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Required Courses

CE 601	Water Treatment	3
CE 602	Wastewater Treatment	3
CE 605	Solid Waste Management	3
CE 606	Environmental Law and Legislation, *or*	
EC 608	Economics for Public Administrators	3
CE 612	Advanced Wastewater Treatment	3
CE 613	Industrial Wastewater Control	3
CE 690	Research Project	3
CH 601	Environmental Chemistry	3
SC 601	Introduction to Ecology	3
SC 602	Pollutants and the Aquatic Environment, *or*	
SC 603	Air Pollution	3
	Elective (CE)	3
	Electives (Approved)	6
	Total credits	**39**

Environmental Science

Coordinator: Charles L. Vigue, Associate Professor of Science and Biology, Ph.D., North Carolina State University

The environmental science program is intended to meet the needs of scientists for academic work in environmental studies beyond the baccalaureate level. The program is interdisciplinary in nature and incorporates science and engineering courses. This program is designed to accommodate the student with a degree in one of the natural sciences.

There exists today a need for a substantial number of scientists knowledgeable in environmental areas. Industries that are required to control the pollution of air and water need environmental scientists. Federal, state and local governments must hire employees and consultants to assist them in environmental matters. Other new vistas will undoubtedly open to the environmental scientists of the future. Environmental scientists will be in increasingly greater demand with the continually increasing problems of pollution.

This program provides the advanced educational skills necessary to meet the ever increasing need for scientists with an environmental background. It is designed to offer vigorous, professionally oriented science and engineering courses in the areas of solid waste, water and air pollution.

Most of the program consists of a required sequence of courses that each student must complete. The balance of the program consists of courses selected from the list of electives. Selection will be based on the student's principal field of interest. Each student, upon entering this program, will be assigned a faculty adviser who will consult with the student during the program of study and will assist in selection of suitable electives.

Admission Policy

Candidates for admission to the environmental science program are expected to have a degree in one of the natural sciences in which certain prerequisite courses have been completed. Students without these courses will be admitted to the program after completing these prerequisites.

M.S., Environmental Science

A total of 39 credit hours must be completed to earn the master of science in environmental science degree. The transfer of credit earned at other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Required Courses

CE 601	Water Treatment, *or*	
CE 602	Wastewater Treatment	3
CE 605	Solid Waste Management	3
CE 606	Environmental Law and Legislation, *or*	
EC 608	Economics for Public Administrators	3
CH 601	Environmental Chemistry	3
SC 601	Introduction to Ecology	3
SC 602	Pollutants and the Aquatic Environment	3
SC 603	Air Pollution	3
SC 608	Water Quality	3
SC 610	General Environmental Health	3
SC 612	Freshwater Ecology	3
SC 613	Marine Ecology	3
SC 698-9	Thesis I and II *or*	
	Electives (approved)	6
	Total credits	**39**

Executive Master of Business Administration

Director of Executive Development: E. Lucien DeShong, B.A., Earlham College

The Graduate School and the School of Business offer a master of business administration degree for high-level executives with extensive managerial experience. The program is designed specifically in consideration of managerial responsibilities and existing time constraints.

The EMBA degree program is a two-year, part-time degree program organized to meet the educational needs and executive responsibilities of corporate and institutional leaders. Individual participation is emphasized through class discussions and cooperation with others in the class. Each class is generally limited to between 15 and 20 students. Class members commence and conclude the program as a group. Courses are offered in Echlin Hall on the main campus and in Stamford.

No graduate transfer credit is accepted into the EMBA program. Admission to the EMBA degree program is by special application, the form for which may be obtained from the EMBA program director. Classes commence in September and January, providing a sufficient number of qualified applicants have applied from which proper selection may be made. An admission committee screens the applications to ensure proper selection. A personal interview with the admissions committee is required. Current position , length of top-management experience and prior formal education are important factors in the selection process. The admission committee attempts to select, from among the applicants, individuals with a diversity of managerial skills and experiences, thereby allowing the students to learn from each other as well as from the faculty.

Upon completion of the program, participants will be awarded the degree of master of business administration (the executive program).

Information concerning admission procedures and the academic calendar may be obtained by writing to the EMBA program director.

Executive M.B.A.

The program consists of 20 courses scheduled into two ten-month academic calendar years. Each course is four sessions in length. All classes meet one afternoon/early evening per week in designated conference facilities for participant convenience. Participants must agree in advance to attend all classes except for emergencies. Students must be prepared to devote additional time for class preparation and reading assignments.

Required Courses

The courses in the executive M.B.A. program are listed below in the order in which they are taken.

EXID 903	The Communication Process	1½
Quantitative Group		
EXID 915	Quantitative Decision Making	1½
EXID 918	Managerial Economics	1½
EXID 936	Statistics and Forecasting	1½
EXID 939	Operations Research and Management	1½
EXID 960	Computers and Management	1½
Industrial Relations Group		
EXID 909	Business and Government Relations	1½
EXID 948	Labor and Management Relations	1½
EXID 945	Human Resources Management	1½
Finance Group		
EXID 912	Financial Accounting	1½
EXID 942	Managerial Accounting	1½
EXID 924	Financial Management I	1½
EXID 927	Financial Management II	1½
Marketing Group		
EXID 930	Marketing Management	1½
EXID 933	International Business	1½
EXID 951	Marketing Management Seminar	1½
Management Group		
EXID 906	The Management Process	1½
EXID 954	Organizational Development	1½
EXID 957	Corporate Policy and Strategy	1½
EXID 921	Executive Development Seminar	1½
	Total credits	**30**

Forensic Science

Director: R.E. Gaensslen, Professor of Forensic Science, Ph.D., Cornell University

Forensic science is a broad, interdisciplinary field in which the natural sciences are employed to analyze and evaluate physical evidence in matters of the law. The interdisciplinary forensic science program has these concentrations: criminalistics, fire science and advanced investigation. In addition to the M.S. degree programs, professional certificates are offered in all the specialties for those who require only the specialized courses. The criminalistics program provides the advanced technical background for professional laboratory examiners and those wishing to enter the criminalistics field.

The fire science program provides advanced training in arson scene investigation, laboratory analysis of arson-related evidence and related aspects of arson and fire investigation. The advanced investigation program provides advanced training in the forensic sciences and in investigation techniques, and is designed for students interested in identification, crime-scene, investigative and other field work.

The program and courses stress not only up-to-date analytical and scientific methods, but also a broad understanding of the concepts underlying the forensic sciences. Degree programs in this program require a sequence of core courses, followed by concentration requirement courses, and a flexible offering of electives designed to meet individual needs.

Admission Policy

For admission to the criminalistics concentration in the M.S. in forensic science program, students must have an undergraduate degree in a natural science field. In addition, applicants are required to take the Graduate Record Examination (GRE) and submit their scores to the Graduate School.

For admission to the fire science or advanced investigation concentration in the M.S. in forensic science program, students must have a baccalaureate degree from an accredited institution. The degree need not be in natural sciences, and the GRE is not required.

M.S., Forensic Science

Candidates are required to complete 40 credit hours of graduate work, which may include an internship in a forensic science laboratory. Transfer of credit from other institutions may be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Required Courses

CJ 614	Survey of Forensic Science	3
CJ 620	Advanced Criminalistics I	3
CJ 640	Advanced Criminalistics II	3
CJ 653	Physical Analysis in Forensic Science	3
CJ 673	Biomedical Methods in Forensic Science	3
	Total credits	**15**

Elective Courses

CJ 608	Law and Evidence
CJ 610	Administration of Justice
CJ 670	Selected Issues in Criminal Justice
CJ 693	Internship
CJ 697-9	Thesis
CJ 695	Independent Study
CJ 690-1	Research Project I & II
CJ 675	Private Security Law
CJ 676	Security Management Seminar
CJ 677	Private Security in Modern Society
SH 602	Safety Organization and Administration
SH 620	Occupational Safety and Health Law
SH 630	Product Safety and Liability

In addition, courses in lists from which one, two or more must be taken, may be taken as electives. Courses listed as requirements for one of the concentrations may be taken as electives for other concentrations with the permission of the director of the program.

Students in the advanced investigation concentration will be encouraged to take either CJ 610 Administration of Justice, or CJ 651 Problems in the Administration of Justice as an elective.

Concentration in Advanced Investigation

CJ 616	Advanced Crime Scene Investigation	3
CJ 632	Advanced Investigation I	3
CJ 633	Advanced Investigation II	3
	Electives	13
	Plus one of the following:	
CJ 608	Law and Evidence	3
PS 605	Criminal Law	3
	Total credits	**40**

Concentration in Criminalistics

CJ 621	Advanced Criminalistics I	1
CJ 641	Advanced Criminalistics II	1
CJ 654	Physical Analysis in Forensic Science	1
CJ 674	Biomedical Methods in Forensic Science	1
CJ 693	Criminal Justice Internship I, *or*	
CJ 690	Research Project I	3
	Electives	10–11
	Plus two of the following:	
CJ 660	Forensic Microscopy	4
CJ 663	Advanced Forensic Serology I	4
CJ 664	Advanced Forensic Serology II	4
CJ 661	Medicolegal Investigation and Identification	3
CJ 662	Forensic Toxicology	4
CH 621	Chemical Forensic Analysis with Laboratory	4
	Total credits	**40**

Concentration in Fire Science

CH 625	Chemistry of Fires and Explosions	3
CJ 665	Legal Aspects of Fire and Arson Investigation	3
CJ 649	Fire Scene Investigation and Arson Analysis	4
	Electives	12
	Plus one of the following:	
CJ 667	Fire and Building Codes, Standards, and Practices	3
CJ 668	Fire and Casualty Insurance Practices	3
CJ 669	Dynamics, Evaluation and Prevention of Structural Fires	3
	Total credits	**40**

Thesis

Students electing to write a thesis must register for thesis credit with the department. The thesis must show an ability to organize material in a clear and original manner, and present well-reasoned conclusions. Thesis preparation and submission must comply with Graduate School policy on theses as well as specific department requirements.

See pages 95-96 for professional certificates in fire science.

Gerontology

Coordinator: Judith Bograd Gordon, Associate Professor of Sociology, Ph.D., University of Michigan

The gerontology program is designed for both the practicing professional and those interested in the field of gerontology.

Gerontology is an interdisciplinary field. The core curriculum exposes students to the fundamental insights and perspectives of sociology, social welfare, political science, psychology and administration, and aids students to compare and contrast these disciplines. The program is designed to expose students to crucial skills necessary to function effectively as gerontological professionals and to prepare them to pursue leadership roles in the field.

The gerontology program is suitable for government employees, business managers, educators, health care professionals and program administrators working in the field of aging, and for those considering such careers now or in the future. The program is also designed to meet the needs of students who wish to develop careers in gerontology.

Admission Requirements

Prospective students must fulfill the admission requirements of the Graduate School. In addition, they may be required to fulfill additional requirements set by the Committee on Studies in Gerontology.

M.A., Gerontology

Each degree candidate will complete an 18-hour core curriculum, and the 21-hour concentration in psycho-social studies or business administrative studies. A total of 39 credit hours is required for the degree. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog. All waivers must be approved in writing by the program coordinator.

Required Courses

P 672	Psychology of the Middle and Later Years	3
PA 644	Administration of Programs and Services for the Aged	3
PS 633	The Political Process and the Aged	3
SC 642	Physical Aging	3
SO 651	Social Gerontology*	3
SO 652	Seminar in Gerontology*	3
	Concentration	21
	Total credits	**39**

See page 89 for the senior professional certificate in gerontology.

*Students are expected to take SO 651 Social Gerontology early in their studies and SO 652 toward the end of the program.

Concentration in Administrative Studies

P 619	Organizational Behavior	3
PA 604	Communities and Social Change	3
PA 641	Financial Management of Health Care Organizations	3
PA 643	Health and Institutional Planning	3
	A management science elective, by advisement	3
	Electives, by advisement	6
	Total credits	**21**

Students with no prior supervised working experience in gerontology are strongly advised to undertake a field work practicum.

Concentration in Psycho-social Relations

SO 641	Death and Suicide	3
SW 651	Social Work with the Elderly I: Individuals, Families and Groups	3
SW 652	Human Services and the Elderly II: Programs, Planning, Policies	3
	*Plus four such as the following:**	
P 623	Psychology of the Small Group	3
P 625	Developmental Psychology	3
P 630	Psychology of Personality	3
P 632	Group Dynamics and Group Treatment	3
P 636	Abnormal Psychology	3
	Elective	3
	Total credits	**21**

* By advisement

Students with no prior supervised working experience in gerontology are strongly advised to undertake a field work practicum.

Hotel and Restaurant Management (M.B.A.)

Adviser: Margaret M. Turcotte, Assistant Professor of Hotel and Restaurant Management, M.B.A., University of New Haven

The hotel and restaurant management program, a concentration in the master of business administration degree, prepares men and women for professional careers in the hospitality industry.

Today's college graduates will find the career paths leading to top management positions in the hotel and restaurant industry to be different from and more difficult than those of the recent past. Considerable hands-on experience together with an M.B.A. will be necessary for those intent on becoming tomorrow's chief hospitality executives and corporate officers.

This program has been designed for those students who have completed an undergraduate degree program in hotel and restaurant management, tourism and travel administration, or other hospitality-related fields.

This program's objectives are to:

- develop analytical skills necessary for the competent and profitable operation of a hospitality facility;
- underscore the importance of those financial, economic, marketing and statistical factors which contribute to the success of a hospitality operation;
- prepare the M.B.A. candidate for a career in hotel and restaurant education.

Career Opportunities

Careers in hotel and restaurant management offer outstanding personal and financial rewards. Graduates of the M.B.A. program face a variety of career possibilities in the United States and abroad, from managing restaurants and food service operations to large hotels, private clubs, resort and housing complexes.

The M.B.A. graduate may seek a challenging and diversified career in operations, accounting, finance or marketing within a hospitality corporation. The food and beverage industry is another alternative for the M.B.A. graduate aspiring to attain an executive or corporate position. The hotel and restaurant management program does not limit the graduate to hospitality fields; students are prepared to enter any field an M.B.A. degree would allow.

Undergraduate Course Requirements

Students holding an undergraduate degree in a field other than hospitality may be required to take up to 30 credits of undergraduate hotel and restaurant management courses.

It should also be noted that the undergraduate course requirements may be taken concurrently with graduate courses. Students should contact the program adviser for the M.B.A. in hotel and restaurant management for more information and planning assistance.

Core Courses

A student is required to complete a total of 48 credit hours, with or without a thesis. A master s thesis is recommended but not required.

The program coordinator may approve waivers based on the student's previous coursework, background in the industry and/or work experience in the industry.

In addition to the previously stated M.B.A. required courses, *with the exception of IB 643 and QA 605* (see page 33), the hotel and restaurant management course requirements consist of:

HR 610	Content Seminar in Hotel and Restaurant Management, Dietetics and Tourism	3
HR 640	Haute Cuisine for Hospitality Executives	3
HR 655	Development of Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 670	Special Topics in Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 690	Research in Hotel and Restaurant Management	3
HR 698	Thesis I, *or*	
HR 625	Supervisory and Leadership Development in Hotels, Restaurants, Dietetics and Tourism Operations	3
HR 699	Thesis II *or*,	
HR 630	Personnel and Labor Relations in Hotel, Restaurant, Dietetics and Tourism Operations	3
	Total credits	**21**

Humanities

Coordinator: David E.E. Sloane, Professor of English, Ph.D., Duke University

The M.A. in humanities emphasizes individual understanding and personal thought. Students are encouraged to develop tutorials and seminars or investigate other areas of the graduate school curriculum. An objective of the program is increased personal sensitivity to the surrounding world through growth in a personally designed curriculum. Courses are intended to challenge students to consider their own ethical decisions.

M.A., Humanities

Thirty hours of course work, including six hours devoted to a thesis or portfolio developed in close consultation with a faculty member, are required for an M.A. in humanities.

Required Courses

HU 606	Humanism and Its Methodology	3
	One course in the evolution of human thought in history: HU 601-2; 611; 616; 621; 626; or 661-669 or equivalent	3
	One course in values and ethics: HU 631; 636; 638; 641; 671-679 or equivalent	3

HU 698-9 Thesis I and II	6
Elective seminars, colloquia, and Independent Study	15
Total credits	**30**

Industrial Engineering

Coordinator: Ira H. Kleinfeld, Professor of Industrial Engineering, Eng. Sc.D., Columbia University

This program is intended to meet the needs of professionally employed engineers working in an environment where cost effectiveness, high productivity and effective use of resources is crucial. It has been designed to give the student an advanced level of training beyond the baccalaureate, sufficient to prepare for a leadership role in industry, insofar as the practice of industrial engineering is concerned.

The program centers on a core sequence required of all students. It contains courses in analysis and design considered to be of common interest to all industrial engineers of advanced professional standing. (See the notes of the waiver policy below as they related to these core courses.) Students complete the program by choosing elective courses in operations research, human factors, manufacturing engineering, computer science or others that are particularly suited to their professional interests. Electives should be chosen so as to provide a coherent collection meeting the student's needs. Once the student and his or her adviser have agreed on these electives, they shall become a part of the student's program of study. All subsequent changes in electives must be made with the adviser's advance written consent.

Admission Policy

Admission to the program is open to persons holding an undergraduate degree in engineering from a program accredited by the Accreditation Board for Engineering and Technology (ABET). In some cases, an applicant with a degree in a related field may be considered for admission. Applicants with degrees in fields other than industrial engineering will be required to take a number of undergraduate courses or otherwise demonstrate proficiency in several areas normally included in an industrial engineering program.

Though admission decisions are based primarily on an applicant's undergraduate record, the promise of academic success is the essential factor for admission.

M.S., Industrial Engineering

The program consists of 48 credit hours. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog. Required courses may be waived on the basis of undergraduate courses taken at accredited institutions. All waivers must be approved in writing by the department of industrial engineering and are conditional upon subsequent academic performance. In some cases, the program coordinator may permit substitution of relevant courses in place of the required courses.

Required Courses

IE 601	Introduction to Operations Research/ Management Science	3
IE 603F	FORTRAN Programming	3
IE 607	Probability Theory	3
IE 609	Descriptive and Inferential Statistics	3
IE 623	Decision Analysis	3
IE 624	Quality Analysis	3
IE 651	Human Engineering I	3
IE 655	Manufacturing Analysis	3
IE 681	System Simulation	3
IE 686	Inventory Analysis	3
IE 688	Design of Experiments	3
	Electives (approved)	15
	Total credits	**48**

Industrial/Organizational Psychology

Coordinator: Robert D. Dugan, Associate Professor of Psychology, Ph.D., Ohio State University

The field of industrial and organizational psychology is directed toward the solution of a wide variety of human problems in organizational settings. This applied behavioral science and profession serves organizations and their employees in a number of areas, including:

- selection and placement of employees
- human resource management
- application of psychological tests and assessment techniques
- employee performance review
- employee training
- management development
- employee motivation and productivity
- organizational climate
- employee attitude and morale measurement

- organizational change and development
- human resource and personnel policy planning
- job analysis and evaluation
- job design and enrichment
- employee assistance programming
- stress management

The goal of the graduate program is to develop expertise in applying the principles and practice of the science of psychology to improve the effectiveness and satisfaction of people at work. The program provides students with a knowledge of contemporary theory, research and practice in the areas listed above. Specific skills can be acquired through coordinating formal course work with an internship or practicum in an organizational setting. The practicum experience is for the student who is currently employed. The internship is served in one of several cooperating business, social service, health or government organizations. Both the internship and practicum receive graduate credit and are supervised by experienced full-time department faculty members.

Admission Policy

Applicants are expected to possess social and interpersonal characteristics that will support success in organizational settings.

Students who give evidence of a mature interest in the application of psychological principles to organizational problems and who hold an undergraduate degree from an accredited college or university are eligible for admission.

Applicants are required to complete a questionnaire and submit it directly to the Graduate School and may be required to submit scores from either the Miller Analogies Test or the Graduate Record Examination Aptitude Test.

An undergraduate major in psychology is not specifically required as a basis for consideration. However, all students are expected to have at least an introductory level understanding of psychological concepts, principles and methods before taking courses in the master of arts in industrial/organizational psychology program. Mastery of the content of an introductory undergraduate statistics course is prerequisite to two of the six core courses.

M.A., Industrial/ Organizational Psychology

A total of 39 credit hours is required of candidates for the degree of master of arts in industrial/organizational psychology. Candidates for this degree are required to complete 18 credit hours of required courses in the core curriculum. Another 21 credit hours of electives are chosen after consultation with the program coordinator, or an I/O faculty member, in light of the student's academic and professional goals. Students may not complete more than nine credit hours of electives until they have satisfied the core requirements. Up to nine credit hours of electives may be taken in other departments, such as industrial engineering, economics, management, marketing or public management.

Transfer Credit

The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer of credit detailed elsewhere in this catalog.

Thesis

Students may elect to write a thesis as part of their program of study. The thesis must show ability to organize materials in a clear and original manner and present well-reasoned conclusions.

Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

Program Options

In response to the different needs and levels of preparation of students in the program, the following four options are available:

Option 1 (Practicum) can be chosen by a student who is currently employed. This option allows the student to become involved in a project that is relevant to industrial/organizational psychology in his or her employing organization. The area of study will ordinarily be outside of the student's regular job assignment. It will be selected by the student's management in conjunction with the student and the faculty adviser.

Option 2 (Internship) gives the student with limited work experience the opportunity to serve an internship in an organizational setting. The content of the internship will be established jointly between the cooperating organization, the faculty adviser and the student.

Option 3 (Thesis) will provide the student planning to pursue doctoral studies with an essential tool—the ability to do empirical research and report writing through the preparation of a thesis.

Option 4 (Electives) consists of elective courses selected under faculty advisement. The choice of electives is intended to provide the student with a broad interdisciplinary background, complementing the student's own academic training and interest.

Normally, the student should not begin work on any of the first three options until at least four core courses are completed.

Required Courses

EC 625	Industrial Relations	3
P 609	Research Methods*	3
P 619	Organizational Behavior	3
P 635	Assessment of Human Performance with Standardized Tests	3
P 640	Industrial Motivation and Morale	3
P 645	Seminar in Industrial/Organizational Psychology	3
	Elective options (see below)**	21
	Total credits	**39**

Elective Options

Option 1

P 678	Practicum I	3
P 679	Practicum II	3
	Electives**	15

Option 2

P 693	Organizational Internship I	3
P 694	Organizational Internship II	3
	Electives**	15

Option 3

P 698	Thesis I	3
P 699	Thesis II	3
	Electives**	15

Option 4

	Electives**	21

* Undergraduate preparation in statistics is prerequisite.
** The choice of electives is made in consultation with a departmental adviser in light of the student's academic and professional goals.

See page 86 for the senior professional certificate in applications of psychology.

Industrial Relations

Coordinator: Wilfred Harricharan, Professor of Management, Ph.D., Cornell University

Environmental forces over the past two decades have created a demand for greater sophistication and professionalism from those responsible for personnel functions within all organizations whether public or private, profit or non-profit, unionized or not. More and more companies and institutions are requiring the services of people conversant with both the large body of available tools and the constraints that have evolved during this period. The program leading to the master of science degree in industrial relations represents a flexible response to this demand.

Industrial relations, as a management and behavioral science discipline, is concerned with all aspects of the employment relationship and, in particular, with the organization's maintenance of the human resources necessary to achieve organizational objectives. As an academic discipline and profession, industrial relations is an interdisciplinary, problem-solving field that attempts to maintain harmony and resolve conflicts among the four major parties to the employment relationship—employees, employers, government and, where applicable, unions.

The M.S. in industrial relations program is aimed at people presently employed in or aspiring to positions in various kinds of organizations in the fields of employment, training and development, wage and salary administration, employee services and benefits, labor-management relations, job and organizational design, labor economics and manpower planning.

Because of the diversity of student interests and employment demand, the program is flexible. The required courses in the program

are drawn from the disciplines of economics, management and psychology. There is a great deal of flexibility in elective courses including options in management, psychology, public administration, marketing, economics, accounting, quantitative analysis, industrial engineering and others. As a result the student will find it possible, to a large extent, to tailor the curriculum to his or her specific needs and interests.

Admission Policy

Admission is open to individuals holding a baccalaureate degree from an accredited institution of higher education. While not an absolute necessity, the undergraduate degree should preferably be in business administration, public administration or in a social or behavioral science (e.g., economics, history, political science, psychology, or sociology). Admission is also open to full-time employed professionals in personnel and industrial relations holding a baccalaureate degree in any field from an accredited institution.

Though admissions decisions are usually based on an applicant's undergraduate record, in some cases the applicant may be required to submit scores from the Graduate Management Admissions Test (GMAT). A personal interview with the industrial relations program coordinator may also be required.

M.S., Industrial Relations

A minimum total of 39 graduate credit hours is required for the master of science degree in industrial relations. Of these, fifteen hours are in approved elective courses. A student may opt to complete a thesis in lieu of two elective courses.

A sample of available elective courses is presented below.

Required Courses

EC 625	Industrial Relations	3
EC 627	Economics of Labor Relations	3
EC 687	Collective Bargaining	3
MG 637	Management	3
MG 645	Management of Human Resources	3
MG 678	Personnel Management Seminar	3
MG 679	Industrial Relations Seminar	3
P 619	Organizational Behavior	3
	Electives (approved)	15
	Total credits	**39**

Electives

(Other courses may qualify subject to approval of the coordinator.)

A 609	State and Local Taxation
CO 621	The Communication Process
EC 629	Public Policies Toward Business
HR 630	Personnel and Labor Relations in the Hotel, Restaurant, Dietetics and Tourism Operations
IE 604	Management Systems
MG 640	Management of Health Care Organizations (in lieu of MG 637)
MG 661	Development of Management Thought
MG 662	Organization Theory

MG 663	Leadership in Organizations
MG 664	Organizational Effectiveness
MG 665	Compensation Administration
MG 680	Current Topics in Business Administration
P 620	Industrial Psychology
P 628	The Interview
P 635	Assessment of Human Performance with Standardized Tests
P 640	Industrial Motivation and Morale
P 641	Personnel Administration and Collective Bargaining in the Public Sector
PA 650	Administrative Law
QA 604	Probability and Statistics
SH 608	Industrial Hygiene Practices
SO 601	Minority Group Relations

Legal Studies

Coordinator: James W. Dull, Associate Professor of Political Science, Ph.D., Columbia University

In view of the increasing importance and complexity of law in society and its relevance to non-lawyers, the program is designed to provide expanded knowledge and understanding of the origins and applications of law in the modern world.

The program will explore the theoretical foundations of law and the structural foundations of American and international law, as well as more specific and technical application affecting modern institutions, corporations and individuals. In addition, electives will permit concentrations in two major areas of law—Law and the Public Sector and Law and the Industrial Process.

The interdisciplinary program will examine the creation and functioning of law at the global, national and state levels among administrative bodies, regulatory agencies, legislatures and the courts. Among the issue-areas covered are legislative law-making, lobbying, contracts, torts, occupational health and safety, collective bargaining, taxation, equal employment opportunity and affirmative action.

M.A., Legal Studies

All students in the master of arts in legal studies program must earn a minimum of 42 credit hours, including 24 credits of required core courses. They should select 18 credits in a concentration, either Law and the Public Sector or Law and the Industrial Sector as outlined below.

Each student is expected to write a thesis or take a comprehensive examination in the last year of graduate study. Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

Required Courses

LA 673	Business Law: Contracts and Sales, *or*	
PA 650	Administrative Law	3

PS 601	Constitutional Law	3
PS 602	Civil Liberties and Rights	3
PS 603	International Law	3
PS 610	Legal Methods I	3
PS 615	Jurisprudence	3
PS 625	Transnational Legal Structures	3
PS 655	Conflict Resolution	3
	Concentration	18
	Total credits	**42**

Concentration in Law and the Industrial Sector

PS 626	Decision Making in the Political Process	3
	Plus five of the following:	
A 601	Federal Income Taxation I	3
A 604	Corporate Income Taxation I	3
A 609	State and Local Taxation	3
A 614	Federal Tax Practice and Procedure	3
EC 629	Public Policies Toward Business	3
EC 687	Collective Bargaining	3
HU 641	Technology and Human Values	3
LA 674	Business Law II: Business Organizations and Negotiable Instruments	3
MG 665	Compensation Administration	3
PA 650	Administrative Law	3
PS 612	Contracts, Torts and the Practice of Law	3
PS 617	Law, Science and Ethics	3
PS 645	Government and the Industrial Sector	3
PS 670	Special Topics	3
PS 695	Independent Study I	3
PS 696	Independent Study II	3
PS 698-9	Thesis I and II	6
SH 620	Occupational Safety and Health Law	2
SH 630	Product Safety and Liability	3
	Total credits	**18**

Concentration in Law and the Public Sector

PS 608	The Legislative Process	3
	Plus five of the following:	
CE 606	Environmental Law and Legislation	3
HU 631	Culture and Ethics in the Modern Age	3
PA 650	Administrative Law	3
PS 604	Human Rights and the Law	3
PS 605	Criminal Law	3
PS 613	Political Justice	3
PS 616	Urban Government	3
PS 628	Change and Government	3
PS 633	The Political Process and the Aged	3
PS 635	Law and Public Health	3

PS 652	Legal Administration	3
PS 670	Special Topics	3
PS 695	Independent Study I	3
PS 696	Independent Study II	3
PS 698-9	Thesis I and II	6
SO 649	Seminar in Health and Social Policy	3
	Total credits	**18**

Management Systems (Sc.D.)

Director: William R. Bockley, Associate Professor of Management, Ph.D., Boston College

The doctor of science program in management systems meets the needs for advanced study by middle- or upper-management personnel from both the public and private sectors. Consideration for admission, however is not restricted solely to these groups. The focus of the program is to increase the student's conceptual skills, enhance a depth of perspective, and promote analytical abilities to identify and pursue creative research opportunities. The program provides an opportunity for individuals in corporate or public service settings to acquire academic knowledge and expertise which will be useful and applicable in those environments.

Admission Policy

All decisions on admission to the UNH doctor of science program are made on an individual basis by a Doctoral Admissions Committee. All applicants must:

- provide evidence of an earned baccalaureate degree from an accredited college or university;
- arrange to take either the GRE or GMAT and have the scores reported to the university; and
- submit three letters of recommendation.

Applicants providing evidence of an earned M.B.A. from an accredited college or university with a minimum QPR of 3.2 will be considered for admission when they have met the requirements for all applicants above.

Applicants providing evidence of an earned master's degree other than an M.B.A. from an accredited college or university with a minimum QPR of 3.2 will be required to pass written qualifying examinations in management, economics, statistics, finance and accounting prior to matriculation, provided that they have met the above criteria for all applicants and are otherwise deemed qualified for admission.

Applicants without master's degrees will be required to carry out Tier I course work or earn a master's degree prior to being considered for matriculation in the doctoral program. Those choosing to earn master's degrees are subject to the requirements for master's degree holders specified above.

To provide for the special needs of working people, the UNH doctoral program offers the opportunity for part-time as well as full-time study. Full-time doctoral study at UNH consists of registration for a minimum of four and a maximum of six doctoral courses per academic year of three trimesters. No student will be permitted to enroll in more than two doctoral courses per trimester. Part-time doctoral study will consist of registration for a minimum of two doctoral courses per academic year.

Sc.D. Management Systems

The three segments of the doctoral program are: ten core courses; written and oral qualifying examinations; and the completion and defense of a dissertation representing the results of original research in conjunction with a faculty adviser and a Dissertation Committee.

Tier I–Concentrations

Systems & Productivity Analysis concentration

A 621	Managerial Accounting	3
EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
EC 621	Economic History of the Western World	3
EC 630	Structure of American Industry	3
EC 633	Managerial Economics	3
FI 615	Finance	3
IE 601	Introduction to Operations Research/ Management Science	3
IE 604	Management Systems	3
IE 611	Budgeting and Control	3
IE 614	Data Information Systems	3
MG 637	Management	3
MK 609	Marketing	3
P 619	Organizational Behavior	3
QA 604	Probability and Statistics, *and*	
QA 605	Advanced Statistics	
	or	
IE 607	Probability Theory, *and*	
IE 609	Descriptive and Inferential Statistics	6
	Total credits	**48**

Organizational Behavior concentration

A 621	Managerial Accounting	3
EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
EC 629	Public Policies Towards Business	3
EC 630	Structure of American Industry	3
FI 615	Finance	3
IE 601	Introduction to Operations Research/ Management Science	3
IE 604	Management Systems	3
MG 637	Management	3
MG 662	Organization Theory	3
MK 609	Marketing	3
P 619	Organizational Behavior	3
P 620	Industrial Psychology	3
PL 601	Business Ethics	3

QA 604	Probability and Statistics, *and*	
QA 605	Advanced Statistics	
	or	
IE 607	Probability Theory, *and*	
IE 609	Descriptive and Inferential Statistics	6
	Total credits	**48**

Public Administration concentration

EC 603	Microeconomic Analysis	3
EC 604	Macroeconomic Analysis	3
EC 608	Economics for Public Administrators	3
EC 630	Structure of American Industry	3
IE 601	Introduction to Operations Research/ Management Science	3
IE 604	Management Systems	3
IE 614	Data Information Systems	3
MG 637	Management	3
MK 609	Marketing	3
PA 601	Principles of Public Administration	3
PA 604	Communities and Social Change	3
PA 630	Governmental Accounting	3
PA 632	Public Finance and Budgeting	3
PL 601	Business Ethics	3
QA 604	Probability and Statistics, *and*	
QA 605	Advanced Statistics	
	or	
IE 607	Probability Theory, *and*	
IE 609	Descriptive and Inferential Statisticss	6
	Total credits	**48**

Tier II–Core Program

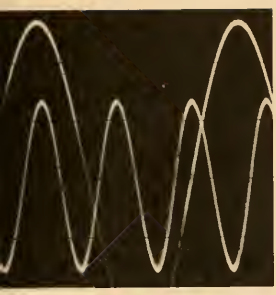
Students not accepted directly into the core program may enroll in Tier II core courses only after satisfactory completion of the required preliminary examination. The core courses, identified by 700-level prefixes, are restricted to doctoral students. The uniform core is required of all students in the program and leads to the qualifying examination for candidacy. Satisfactory performance on the written qualifying examination must precede formal acceptance of a research proposal, designation of a three-person doctoral committee, and recognition as a qualified candidate for the degree. All core courses must be taken in residence at the university. The residency requirement for all graduate degrees is 30 credits.

Management Systems

EC 703	Forecasting and Econometrics	3
EC 704	Public and Private Policy Interfaces	3
FI 701	Seminar in Financial Policy	3
IE 704	Seminar in Management and Control Systems	3
MG 701	Research Design I	3
MG 702	Research Design II	3
MG 737	Seminar in Management—Current Topics	3
MG 738	Policy and Strategic Decision Making	3

MK 701	Seminar in Strategic Marketing	3
P 719	Seminar in Human Resources	3
	Total credits	**30**

A dissertation based upon original research is required of all candidates. After passing the qualifying examination, a candidate may select an advisory committee, normally three professors drawn from the graduate faculty, which, when formally appointed by the Graduate School after approval by the university's Doctoral Committee and the School of Business, becomes the candidate's doctoral committee for consultation and direction during the research project. A research proposal must be filed with the Graduate School by the candidate and his or her doctoral committee within one year of the date of attaining candidacy. When approved, the research proposal serves as the formal statement of intent and scope of work of the research activity, and steady progress under the guidance of the doctoral committee is expected of each candidate. A candidate is expected to maintain continuous registration under MG 790: Doctoral Thesis (non-credit), and to complete a dissertation within five years of filing the required research proposal.



Mechanical Engineering

Coordinator: John Sarris, Professor of Mechanical Engineering, Ph.D., Tufts University

This program is intended to meet the needs of professionally employed engineers and scientists for academic work beyond the baccalaureate level. It has been designed to increase competence in modern analysis and synthesis techniques as they apply to engineering design.

The program centers on a core sequence which all students are expected to take. The core courses contain advanced methods of analysis and design which are of common interest in engineering work. Students complete the program by electing a series of courses in mechanical engineering that is particularly suited to their current professional interests. Early in the program, students, with the approval of their advisers, prepare a detailed plan ensuring an overall educational experience that is integrated and logical.

All decisions regarding both core and elective requirements are subject to final approval by the student's adviser.

M.S., Mechanical Engineering

A minimum of 34 credits must be completed to earn the master of science degree in mechanical engineering. Transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit. A thesis is optional but highly recommended for students wishing to study in depth particular areas of interest under the guidance of a faculty member. Thesis topics should be approved by the faculty adviser when the student has completed 18-21 graduate

credits.* Thesis preparation and submission must comply with the Graduate School policy on theses as well as all specific department requirements.

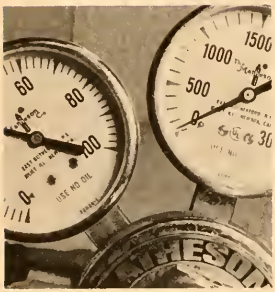
Required Courses

ME 602	Mechanical Engineering Analysis I	3
ME 620	Classical Thermodynamics	3
ME 625	Mechanics of Continua	3
ME 635	Dynamic Systems and Controls	4
	Electives	21
	Total credits	**34**

* A student should contact the coordinator for thesis advisers in these specialized areas: accoustics/aerodynamics, fluids/biomechanics, gas dynamics, heat transfer/thermodynamics, applied mechanics/optics, systems analysis/machine design, materials/metallurgy, instrumentation/robotics, solid mechanics/computerized design.

Elective Courses**

M 624	Applied Mathematics	3
ME 604	Mechanical Engineering Analysis II	3
ME 605	Finite Element Methods in Engineering	3
ME 610	Advanced Dynamics	3
ME 611	System Vibrations	3
ME 613	Fundamentals of Acoustics	3
ME 615	Theory of Elasticity	3
ME 622	Statistical Mechanics	3
ME 628	Modern Materials	3
ME 630	Advanced Fluid Mechanics	3
ME 632	Advanced Heat Transfer	3
ME 638	Measurement and Instrumentation in Mechanical Engineering	3
ME 645	Computational Fluid Dynamics and Heat Transfer	3
ME 670	Special Topics-Mechanical Engineering	3
ME 695	Independent Study I	3
ME 696	Independent Study II	3
ME 698-9	Thesis I and II	6



** With the coordinator's approval, two of the elective courses may be non-M.E. courses.

Occupational Safety and Health Management

Coordinator: Brad T. Garber, Professor of Occupational Safety and Health Management, Ph.D., University of California at Berkeley

The M.S. program is designed to develop the skills required to manage a comprehensive safety and health program. It will accommodate both active practitioners and persons who wish to enter this dynamic field. An in-depth education is provided through a program of 30 credit hours of required courses and 18 credit hours of electives. The courses provide training in both the technical and management areas.

Specifically, the graduates of the program will have received extensive instruction in how to:

- evaluate the quality and effectiveness of existing safety programs;
- conduct surveys for health and safety hazards;
- institute programs to improve safety and health performance;
- establish accident prevention procedures;
- implement control measures to eliminate or reduce hazards;
- recommend methods of compliance with local, state and federal regulations with voluntary standards;
- manage occupational safety and health programs in industry, government and labor unions.

Admissions Policy

Admission to the master of science in occupational safety and health management program is open to persons who hold a baccalaureate degree from an accredited institution. Undergraduate courses in general chemistry, general physics, biology, statistics, psychology, and accounting are required. The degree candidate may be required to submit scores from the Graduate Record Examination. Students who do not meet all requirements will be evaluated on an individual basis.

M.S., Occupational Safety and Health Management

Candidates are required to complete 48 credit hours of graduate work. Transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit noted elsewhere in this catalog. Consideration for waiver of core courses on the basis of undergraduate experience is at the discretion of the program coordinator.

The student will choose twelve credit hours of electives in consultation with the adviser. Students also must take six hours of SH 693/694 Internship, SH 695/696 Independent Study, or SH 698/699 Thesis.

Required Courses

IE 651	Human Engineering I	3
MG 637	Management	3
P 619	Organizational Behavior	3
QA 604	Probability and Statistics	3
SH 602	Safety Organization and Administration	3
SH 605	Industrial Safety Engineering	3
SH 608	Industrial Hygiene Practices	3
SH 615	Industrial Toxicology	3
SH 620	Occupational Safety and Health Law	3
SH 630	Product Safety and Liability	3
	Electives	18
	Total credits	**48**

Elective Courses

CE 602	Wastewater Treatment	3
CH 601	Environmental Chemistry	3
IE 612	Managerial Interactions I	3
MG 664	Organizational Effectiveness	3
MG 678	Personnel Management Seminar	3
P 640	Industrial Motivation and Morale	3
SC 603	Air Pollution	3
SC 610	General Environmental Health	3
SH 611	OSH Research Methods and Techniques	3
SH 660	Industrial Ventilation	3
SH 661	Microcomputers in Occupational Safety and Health	3
SH 665	Occupational Safety and Health Measurements	3
SH 670	Selected Topics	3
SH 690-1	Research Project I and II	1-3 each
SH 693-4	OSH Internship I and II	1-3 each
SH 695-6	Independent Study I and II	1-3 each
SH 698-9	Thesis I and II	6

Operations Research

Coordinator: Ira H. Kleinfeld, Professor of Industrial Engineering, Eng. Sc.D., Columbia University

Operations research has become an important professional discipline in recent years. Complex technical problems have been examined and solved using advanced mathematical techniques and computers. The master of science in operations research curriculum provides thorough coverage of the theory, methodology and application of these techniques. The program is designed to prepare qualified applicants with solid mathematics training — but from otherwise diverse backgrounds — to deal with important industrial, business, commercial and governmental problems.

The program centers on a sequence of core courses recognized to be of common interest to all operations research practitioners of advanced professional standing. Students complete the program by choosing elective courses in operations research, computer science, mathematics or other courses that are particularly suited to their professional interests. Electives should be chosen so as to provide a coherent collection meeting the student's needs. Once the student and an adviser have agreed to these electives, they shall become a part of the student's program of study. All subsequent changes in electives must be made with the adviser's advance written consent.

M.S., Operations Research

The program consists of 48 credit hours. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog. Required courses may be waived on the basis of undergraduate courses taken at accredited institutions. All waivers must be approved in writing by

the department of industrial engineering and are contingent upon subsequent academic performance. In some cases, the coordinator may permit substitution of relevant courses in place of the required courses.

Required Courses

IE 601	Introduction to Operations Research/ Management Science	3
IE 603F	FORTRAN Programming	3
IE 607	Probability Theory	3
IE 609	Descriptive and Inferential Statistics	3
IE 621	Linear Programming	3
IE 622	Queuing Theory	3
IE 625	Advanced Mathematical Programming	3
IE 681	System Simulation	3
IE 685	Theory of Optimization	3
IE 687	Stochastic Processes	3
IE 688	Design of Experiments	3
ME 610	Fundamentals of Calculus and Linear Algebra	3
	Electives (approved)	12
	Total credits	**48**

Public Administration

Coordinator: Charles Coleman, Assistant Professor of Public Administration, M.P.A., West Virginia University

The general purpose of the master of public administration degree is the training of men and women at the graduate level for public service careers. Specifically, the program strives to:

- equip students with modern analytical and quantitative tools of decision making and their application to complex problems of government and non-profit organizations;
- expose students to the wide range of administrative and managerial problems and responsibilities in the public sector; and
- increase the student's knowledge and skills in the particular management functions of budgeting, planning, public policy formulation, public finance, public personnel administration, collective bargaining and research.

M.P.A.

Forty-two graduate credit hours are required of candidates for this degree. Of the 15 credit hours of electives in the M.P.A. program, six credit hours may be taken in graduate courses offered in other programs such as psychology, criminal justice, economics and industrial engineering.

Required Courses

EC 608	Economics for Public Administrators	3
PA 601	Principles of Public Administration	3

PA 602	Public Policy Formulation and Implementation	3
PA 604	Communities and Social Change	3
PA 611	Research Methods in Public Administration	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
PA 625	Administrative Behavior	3
PA 632	Public Finance and Budgeting	3
PA 690	Research Seminar	3
	Electives	15
	Total credits	**42**

See page 92 for the senior professional certificate in public management.

Concentration in Health Care Management

This concentration is designed for those individuals currently in health care management or those who anticipate a career in health care management. Courses provide students with the conceptual and practical skills necessary for the management of a health care organization.

Students choosing the health care concentration will take the core curriculum of nine courses and follow the health care concentration in lieu of their five elective courses.

MG 640	Management of Health Care Organizations	3
PA 641	Financial Management of Health Care Organizations	3
PA 643	Health and Institutional Planning	3
PS 635	Law and Public Health	3
	Plus one of the following:	
PA 642	Health Care Delivery Systems	3
PA 644	Administration of Programs and Services for the Aged	3
PA 645	Health Care Economics and Finance	3
PA 646	Management of Long Term Care Facilities	3
PA 670	Selected Topics	3
	Total credits	**15**

Taxation

Coordinator: Robert E. Wnek, Associate Professor of Accounting and Finance, CPA, LL.M., Boston University School of Law

The decision by government to utilize its taxing authority to pursue a variety of economic and social goals has led to the development of a complex body of "tax law." Given the dynamic state of society's economic and social goals, the body of "tax law" characteristically exists in a continual state of change.

The complexity of "tax law" is significant not only because of its impact upon accomplishing society's goals but also because of its influence upon the economic decison-making process. Tax consequences have been and will continue to be an important financial consideration.

Program Objectives

In recognition of the above, a need to prepare technically competent individuals for careers in the field of taxation has developed. Owing to the complex and dynamic nature of "tax law," it appears appropriate to conduct this preparation at an advanced level of inquiry with an emphasis upon examining the issues of current interest in taxation. Accordingly, the master of science program in taxation has been designed as a framework to accomplish the following structure of objectives:

- to prepare students for technical competence in understanding and interpreting tax law;
- to familiarize students with the administrative structure and procedures of the Internal Revenue Service;
- to inform students about approaches to independent research in the field of tax law;
- to offer an understanding of the role tax law plays in social and economic policy.

Given the above objectives, the master of science program in taxation provides a framework through which advanced and timely tax training can be acquired by experienced professionals (accountants and attorneys) practicing in the field of taxation, as well as individuals seeking to prepare themselves for entry into career positions in taxation.

Admission Policy

Admission to the program is available to CPA's, attorneys, and persons holding an undergraduate degree from an accredited institution, preferably, but not exclusively, in accounting or in business administration with a major in accounting. Persons holding other than the above degrees will be required to take a number of selected undergraduate courses as a condition for admission. Admission is based primarily on an applicant's undergraduate record; however, the promise of academic success is the essential factor for admission. In support of applications, applicants may submit their scores from the Graduate Management Admissions Test (GMAT). An applicant may be required to take this test.

M.S., Taxation

A total of 36 credits is required for the master of science in taxation. The program will include 24 credits from required core courses and 12 credits from electives. The transfer of credit from other institutions will be permitted subject to the Graduate School policy on transfer credit detailed elsewhere in this catalog.

Required Courses

A 601	Federal Income Taxation I	3
A 602	Federal Income Taxation II	3
A 604	Corporate Income Taxation I	3
A 605	Corporate Income Taxation II	3
A 607	Tax Accounting	3
A 608	Estate and Gift Taxation	3
A 614	Federal Tax Practice and Procedure	3
A 615	Research Project in Federal Income Taxation	3
	Electives	12
	Total credits	**36**

Elective Courses

A 603	Federal Income Taxation III	3
A 606	Corporate Income Taxation III	3
A 609	State and Local Taxation	3
A 610	Consolidated Returns	3
A 611	Income Taxation of Estates and Trusts	3
A 612	International Taxation	3
A 613	Taxation of Partnerships and Partners	3

For practitioners wishing to improve or update their tax skills but uncertain about pursuing a master's in taxation, two senior professional certificate programs are offered: Taxation of Individuals (Option I) and Taxation of Corporations (Option II), as described on page 00.

Practicing CPA's in need of continuing education credits and others generally seeking to expand their tax background should consider this alternative.

See page 93 for the senior professional certificate in taxation.

Senior Professional Certificates

This program is limited to those already holding an advanced degree who want additional graduate study in a coherent program.

Since the senior professional certificate is not a degree, a student may transfer credits earned for a certificate into a master's program at any time, subject to the requirements of the master's degree and the decision of the coordinator of the master's program, and to acceptance in the master's program. Professional certificates, for those without advanced degrees, are available in criminal justice and forensic science.

A student completing work in a certificate program does not attend commencement but will receive a certificate. A petition for certification must be filed with the graduate registrar and the appropriate fee paid. When the course work is reviewed and found complete, the certificate will be mailed to the student. A minimum Q.P.R. of 3.0 is required in courses taken at the university as part of the senior professional certificate program.

Senior Professional Certificate Requirements

The program consists of 15 or 18 credits, depending upon the area chosen. Students, having chosen their area of study, should contact the adviser who is listed for that particular area. Students must meet all course prerequisite requirements.

Programs of Study

A broad range of senior professional certificates is offered. The programs are the following:

Accounting
- I: Financial Accounting
- II: Managerial Accounting
- III: Accounting Information Systems

Applications of Psychology
Computer and Information Science
Dietetics Administration
Economic Forecasting
Finance
General Management
Gerontology
Hotel and Restaurant Management
Human Resources Management
International Business
Marketing
- I: Marketing
- II: Quantitative Techniques in Marketing

Media in Business
Occupational Safety and Health Management
Public Management
- I: Survey of the Field
- II: Urban and Regional Planning and Management
- III: Public Personnel Management

Quantitative Analysis
Taxation
- I: Taxation of Individuals
- II: Taxation of Corporations

Accounting

Adviser: Robert E. Wnek, CPA, Associate Professor of Accounting and Finance

The certificates in accounting are recommended to students and professionals whose education already includes an accounting degree and who wish to pursue accounting at an advanced level without necessarily enrolling in the full graduate program. It is especially recommended to certified public accountants who wish to obtain continuing professional education credits in an academic environment.

Option I: Financial Accounting*

Any five of the following:

A 650	Advanced Accounting Theory	3
A 651	Financial Accounting Seminar	3
A 652	Advanced Auditing	3
A 653	Accounting for the Not-for-Profit Organization	3
A 654	Financial Statements: Reporting and Analysis	3
A 656	International Accounting	3
	Total credits	**15**

Option II: Managerial Accounting*

Any five of the following:

A 621	Managerial Accounting	3
A 641	Accounting Information Systems	3

A 642	Operational Auditing	3
A 661	Managerial Accounting Seminar	3
FI 615	Finance	3
FI 645	Corporate Financial Theory	3
FI 651	Portfolio Management and Capital Market Analysis	3
	Total credits	**15**

Option III: Accounting Information Systems*

A 641	Accounting Information Systems	3
A 642	Operational Auditing	3
A 652	Advanced Auditing	3
	Plus any two accounting systems or computer science courses	6
	Total credits	**15**

*Other courses may be substituted by consent of the coordinator of the program.

Applications of Psychology

Adviser: Thomas L. Mentzer, Ph.D., Professor of Psychology

This certificate program in applications of psychology is designed to assist professionals who wish to acquire specific kinds of skills in areas dealing with human services or personnel functions. This program can be tailored to the needs of either one whose master's degree is in a non-psychological field or one with a master's degree in psychology who wishes to broaden skills to a new area of psychology. Courses will be selected depending upon the student's career objectives and academic preparation. These courses may be from the following list, but other courses, independent study, or special topics courses may be chosen where appropriate.

Any five of the following:

P 610	Program Evaluation	3
P 621	Behavior Modification	3
P 623	Psychology of the Small Group	3
P 627	Attitude and Opinion Measurement	3
P 628	The Interview	3
P 629	Introduction to Psychotherapy and Counseling	3
P 630	Psychology of Personality	3
P 631	Social Psychology	3
P 632	Group Dynamics and Group Treatment	3
P 633	Problems of Drug Abuse	3
P 636	Abnormal Psychology	3
P 638	Psychology of Communication and Opinion Change	3
P 641	Personnel Development and Training	3
P 642	Organizational Change and Development	3
P 650	Ecological Psychology	3
	Total credits	**15**

Computer and Information Science

Adviser: Roger G. Frey, Ph.D., Professor of Industrial Engineering and Computer Science

This certificate provides a set of courses central to the study of computers and computing. Its domain of application includes both scientific and business computing.

IE 603P	Pascal Programming	3
IE 608	Assembly Language	3
IE 648	Data Structures	3
IE 658	Database Systems	3
IE 680	Software Engineering	3
	Total credits	**15**

Note: students with insufficient computing background may be required to take IE 602, Computing Fundamentals, in order to enter the program courses with adequate preparation.

Dietetics Administration

Adviser: Margaret O'Donnell, Assistant Professor of Dietetics and Institutional Management

This certificate is designed for those students who wish to become effective professional managers in health care. It is designed to expand the student's awareness of organizational structures and to underscore the importance of those financial, economic, marketing and statistical factors which contribute to the success of a health care organization.

DI 635	Applied Dietetics for Health Care Professionals	3
DI 690	Research in Dietetics and Institutional Management	3
HR 610	Content Seminar in Hotel and Restaurant Management, Dietetics and Tourism	3
HR 655	Development of Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 670	Special Topics in Hotel, Restaurant, Dietetics and Tourism Operations	3
SC 615	Life Cycle Nutrition, *or*	
SC 616	Geriatric and Advanced Nutrition	3
	Total credits	**18**

Economic Forecasting

Adviser: John J. Teluk, Ph.D., Professor of Economics

The certificate is designed to provide preparation for positions which involve forecasting and modeling. Students enrolled in this program are expected to have knowledge of computer use, especially FORTRAN.

EC 604	Macroeconomic Analysis	3
EC 645	Seminar in Macroeconomic Policy	3
EC 653	Econometrics	3
QA 607	Forecasting	3

Plus one of the following:

EC 629	Public Policies Toward Business	3
EC 630	Structure of American Industry	3
EC 633	Managerial Economics	3
	Total credits	**15**

Finance

Adviser: Robert Rainish, Ph.D., Associate Professor of Accounting and Finance

The goal of the finance certificate is to prepare individuals for the expanding sector of financial services and modern corporate financial management. The program stresses the understanding of the conceptual foundations of finance and uses of analytical techniques, with special emphasis on the implications and applications of the financial concepts. Senior certificate candidates are required to meet the prerequisites for FI 615. It is *strongly recommended* that the student contact the finance coordinator as early as possible to plan the appropriate sequence of courses.

FI 615	Finance	3
	Plus four of the following:	
FI 617	Financial Institutions and Capital Markets	3
FI 619	Monetary and Central Banking Policy	3
FI 620	Working Capital Management and Planning	3
FI 645	Corporate Financial Theory	3
FI 649	Security Analysis	3
FI 651	Portfolio Theory and Capital Market Analysis	3
FI 655	Speculative Market Analysis	3
	Total credits	**15**

Other courses may be substituted with the consent of the coordinator of the program.

General Management

Adviser: Wilfred Harricharan, Ph.D., Professor of Management

The program is designed to develop students' conceptual knowledge and skills in formulating corporate strategy and in determining structural and resource requirements. The program focuses on concepts and processes useful in relation to general management, and functional responsibilities in coordinating and directing the organizational effort in our ever-changing economic environment. Please note that MK 609 and MG 637 are prerequisites for the certificate.

MG 663	Leadership in Organizations	3
MG 664	Organizational Effectiveness	3
MG 669	Business Policy and Strategy	3
	Plus three of the following:	
MG 660	Comparative Management	3
MG 662	Organization Theory	3
MG 675	Readings in Management	3
MG 680	Current Topics in Business Administration	3
	Total credits	**18**

Gerontology

Adviser: Judith B. Gordon, Ph.D., Associate Professor of Sociology

This certificate in gerontology is designed to enhance existing skills of professionals working with the elderly in social work, law, medicine, nursing and other related fields.

Students are expected to plan a sequence of courses with the faculty adviser at the start of the program. Elective courses will be selected depending upon a student's interests, career objectives and academic preparation.

P 672	Psychology of the Middle and Later Years	3
SO 651	Social Gerontology	3
SO 695	Independent Study I	3
SW 652	Human Services and the Elderly II: Programs, Planning, Policies	3
	Plus two electives, by advisement	6
	Total credits	**18**

Hotel and Restaurant Management

Adviser: Margaret M. Turcotte, M.B.A., Assistant Professor of Hotel and Restaurant Management

This certificate is designed to develop analytical skills necessary for the competent and profitable operation of a hospitality facility. It expands the student's awareness in and underscores the importance of those financial, economic, marketing and statistical factors which contribute to the success of a hospitality operation.

HR 610	Content Seminar in Hotel and Restaurant Management, Dietetics and Tourism Administration	3
HR 625	Supervisory and Leadership Development in Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 630	Personnel and Labor Relations in Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 655	Development of Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 670	Special Topics in Hotel, Restaurant, Dietetics and Tourism Operations	3
HR 690	Research in Hotel and Restaurant Management	3
	Total credits	**18**

Human Resources Management

Adviser: Wilfred Harricharan, Ph.D., Professor of Management

This certificate is designed for the personnel professional or persons in other fields who aspire to the personnel function. It also serves the needs of the individual whose previous degrees are not related to human resource management or who is looking for an update without necessarily pursuing a specialized degree.

MG 645	Management of Human Resources	3
MG 678	Personnel Management Seminar	3
	Plus four of the following:	
EC 625	Industrial Relations	3

EC 627	Economics of Labor Relations	3
EC 687	Collective Bargaining	3
MG 663	Leadership in Organizations	3
MG 664	Organizational Effectiveness	3
MG 665	Compensation Administration	3
MG 679	Industrial Relations Seminar	3
P 627	Attitude and Opinion Measurement	3
P 628	The Interview	3
P 641	Personnel Development & Training	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
	Total credits	**18**

Note: Course substitutions may be permitted depending upon the background of the student and subject to the approval of the adviser.

International Business

Adviser: Michael Kublin, Ph.D., Assistant Professor of Marketing

This certificate is designed to prepare future managers to deal with the current problems and methods of analysis related to international business. This includes basic techniques and skills, such as adapting to new political and cultural environments, which are not normally covered by traditional courses.

IB 643	International Business	3
IB 644	International Trade and Finance	3
	Plus three of the following:	
EC 641	International Economics	3
IB 645	Comparative International Business Environments	3
IB 651	International Marketing	3
IB 652	Multinational Business Management	3
MG 660	Comparative Management	3
	Total credits	**15**

Marketing

Adviser: Wilfred Harricharan, Ph.D., Professor of Management

The certificate in marketing allows the student to acquire a deeper understanding of marketing phenomena and to develop analytical skills. Specific emphasis is given to the development of content knowledge and skills necessary for operating managers of the marketing function. It is suggested that Marketing Research and Marketing Management, if taken, be preceded by other courses in the program. Note that MK 609 and MG 637 are prerequisites for the certificate.

Option I: Marketing

MK 641	Marketing Management	3
	Plus one course in International Business and three of the following:	
MK 616	Buyer Behavior	3
MK 639	Marketing Research and Information Systems	3

MK 643	Product Management	3
MK 644	Consumerism	3
MK 645	Distribution Strategy	3
MK 680	Marketing Workshop	3
MG 669	Business Policy and Strategy	3
	Total credits	**15**

Option II: Quantitative Techniques in Marketing

This specialization will enable the student to utilize the latest quantitative methods to redefine and to plan the corporate scope of a business. It is critical for problem-solving at both strategic and tactical levels. Particular emphasis is placed on marketing distribution problems by the intensive study of transportation and logistics.

IE 603F	FORTRAN Programming	3
QA 604	Probability and Statistics	3
	Plus three of the following:	
IE 615	Transportation and Distribution	3
MK 639	Marketing Research and Information Systems	3
MK 641	Marketing Management	3
QA 607	Forecasting	3
	Total credits	**15**

Media in Business

Adviser: Jean Bodon, Ph.D., Assistant Professor of Communication

This certificate program gives the student those skills, theories and techniques, desirable and necessary within the corporate environment. By stressing media in terms of audio-visual use, media presentation and training, professionalism becomes the focus of the program. The student will be introduced to different media and all stages of production, from script to transparency to video. As a final course project, the student will link up with a corporate sponsor to design and produce a specific media presentation.

CO 601	Basics of Business Media Production Techniques	3
CO 605	Planning Audio Visual Systems for Business	3
CO 609	Scripting the Media Presentation	3
CO 613	Media Presentations for Business	3
CO 621	The Communication Process	3
	Total credits	**15**

Note: CO 601 is a prerequisite to CO 613.

Occupational Safety and Health Management

Adviser: Brad T. Garber, Ph.D., Professor of Occupational Safety and Health Management

The senior professional certificate program prepares individuals to manage a comprehensive safety and health program. It is designed to

fit the needs of those persons who already hold an advanced degree but who desire specific training in this dynamic field. The wide variety of course offerings allows a student to select a sequence of courses that best meets his or her individual needs.

*Any five of the following:**

SH 602	Safety Organization and Administration	3
SH 605	Industrial Safety Engineering	3
SH 608	Industrial Hygiene Practices	3
SH 615	Industrial Toxicology	3
SH 620	Occupational Safety and Health Law	3
SH 630	Product Safety and Liability	3
SH 660	Industrial Ventilation	3
SH 661	Microcomputers in Occupational Safety and Health	3
SH 665	Occupational Safety and Health Measurements	3
	Total credits	**15**

*Other courses may be substituted by consent of the adviser of the program.

Public Management

Adviser: Charles Coleman, M.P.A., Assistant Professor of Public Management

This certificate in public management is designed to provide a broad overview of the most up-to-date thinking in public management. Courses emphasize conceptual and analytic skill building. Students may opt for either a survey of the field, urban and regional planning and management, or public personnel management.

Option I: Survey of the Field

Any five of the following:

EC 665	Urban and Regional Economic Development	3
PA 611	Research Methods in Public Administration	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
PA 625	Administrative Behavior	3
PA 630	Governmental Accounting	3
PA 632	Public Finance and Budgeting	3
PA 660	Urban Planning: Theory and Practice	3
PS 608	The Legislative Process	3
	Total credits	**15**

Option II: Urban and Regional Planning and Management

Any five of the following:

EC 665	Urban and Regional Economic Development	3
PA 630	Governmental Accounting	3
PA 634	Problems of Municipal Management	3
PA 660	Urban Planning: Theory and Practice	3
PA 661	Problems of Metropolitan Areas	3
PS 616	Urban Government	3
	Total credits	**15**

Option III: Public Personnel Management

EC 625	Industrial Relations	3
MG 645	Management of Human Resources	3
PA 620	Personnel Administration and Collective Bargaining in the Public Sector	3
PA 625	Administrative Behavior	3
	Plus one of the following:	
MG 665	Compensation Administration	3
P 627	Attitude and Opinion Measurement	3
P 635	Assessment of Human Performance with Standardized Tests	3
	Total credits	**15**

Quantitative Analysis

Adviser: John N. Moore, Ph.D., Associate Professor of Economics and Quantitative Analysis.

QA 604	Probability and Statistics	3
QA 605	Advanced Statistics	3
QA 606	Advanced Management Science	3
QA 607	Forecasting	3
QA 690	Research Project	3
	Total credits	**15**

Taxation

Adviser: Robert E. Wnek, CPA, Associate Professor of Accounting and Finance

This certificate program is for practitioners who wish to improve or up-date their tax skills, including practicing C.P.A.'s needing continuing education credits and others seeking to expand their tax background.

Option I: Taxation of Individuals

A 601	Federal Income Taxation I	3
A 602	Federal Income Taxation II	3
A 603	Federal Income Taxation III	3
A 608	Estate and Gift Taxation	3
	Plus one taxation elective	3
	Total credits	**15**

Option II: Taxation of Corporations

A 604	Corporate Income Taxation I	3
A 605	Corporate Income Taxation II	3
A 606	Corporate Income Taxation III	3
A 610	Consolidated Returns	3
	Plus one taxation elective	3
	Total credits	**15**

Other courses may be substituted by consent of the coordinator of the program.

Professional Certificates

These programs are open to all persons having undergraduate degrees who want graduate study in a coherent program. Professional certificates are available in criminal justice, fire science and forensic science.

A student completing work in a certificate program does not attend commencement but will receive a certificate. A petition for certification must be filed with the graduate registrar and the appropriate fee paid. When the course work is reviewed and found complete, the certificate will be mailed to the student. A minimum QPR. of 3.0 is required in courses taken at the university as part of the professional certificate program.

Professional Certificate Requirements

The program consists of 15 to 21 credits, depending upon the area chosen. Students, having chosen their area of study, should contact the adviser who is listed for that particular area. Students must meet all course prerequisite requirements.

Criminal Justice

Security Management

Adviser: David Maxwell, Assistant Professor of Criminal Justice, J.D., University of Miami

The certificate under the criminal justice department is designed for those professionals who wish to enhance their knowledge and skills in security management. Admission into the professional certificate program in security management is open to all persons who hold an undergraduate degree from an accredited institution of higher education.

CJ 612	Criminal Justice Management	3
CJ 669	Dynamics, Evaluation and Prevention of Structural Fires	3
CJ 675	Private Security Law	3
CJ 676	Security Management Seminar	3
CJ 677	Private Security in Modern Society	3
SH 602	Safety Organization and Administration	3
	Total credits	**18**

Fire Science

Fire Science/ Administration & Technology

Adviser: Frederick Mercilliott, Associate Professor of Fire Science, D.A., Western Colorado University

In the past three years, the number of fires in this country has increased more than 100 percent while arson has increased at a rate of 300 percent. Subsequent increases in loss of life and property have triggered a need for trained professionals in the field. This certificate meets the need for fire, public safety, insurance and security professionals to keep up to date on the latest administrative and technological techniques in the field of fire science. It is not designed for those who intend to seek the M.S. degree.

Candidates for the professional certificate in fire science administration and technology are required to have a B.S. degree in fire science or a related field. Candidates are required to complete seven courses or a total of 21 graduate credits, including:

FS/CJ 667	Fire and Building Codes, Standards & Practices	3
FS/CJ 668	Fire & Casualty Insurance Practices	3
FS/CJ 669	Dynamics, Evaluation & Prevention of Structural Fires	3
FS/CH 625	Chemistry of Fires & Explosions	3
	Plus any three of the following:	
SH 602	Safety Organization & Administration	3
S 620	Occupational Safety & Health Law	3
P 619	Organizational Behavior	3
P 695	Special Topics	3
CJ 677	Private Security in Modern Society	3
CJ 695	Independent Study	3
FS 670	Special Topics	3
	Total credits	**21**

Forensic Science

Adviser: R. E. Gaensslen, Professor of Forensic Science, Ph.D., Cornell University

The forensic science section offers three professional certificates in three specialized fields: criminalistics, fire science and advanced investigation. All are open to persons holding an undergraduate degree from an accredited institution of higher education.

Advanced Investigation

CJ 614	Survey of Forensic Science	3
CJ 616	Advanced Crime Scene Investigation	3
CJ 632	Advanced Investigation I	3
CJ 633	Advanced investigation II	3

Plus two of the following:

CJ 608	Law and Evidence	3
CJ 620	Advanced Criminalistics I	3
CJ 640	Advanced Criminalistics II	3
CJ 673	Biomedical Methods in Forensic Science	3
CJ 653	Physical Analysis in Forensic Science	3
CJ 661	Medicolegal Investigation and Identification	3
PS 605	Criminal Law	3
	Total credits	**18**

Criminalistics

CJ 620	Advanced Criminalistics I	3
CJ 621	Advanced Criminalistics I	1
CJ 640	Advanced Criminalistics II	3
CJ 641	Advanced Criminalistics II	1
CJ 673	Biomedical Methods in Forensic Science	3
CJ 674	Biomedical Methods in Forensic Science	1
CJ 683	Physical Analysis in Forensic Science	3
CJ 684	Physical Analysis in Forensic Science	1

Plus one of the following:

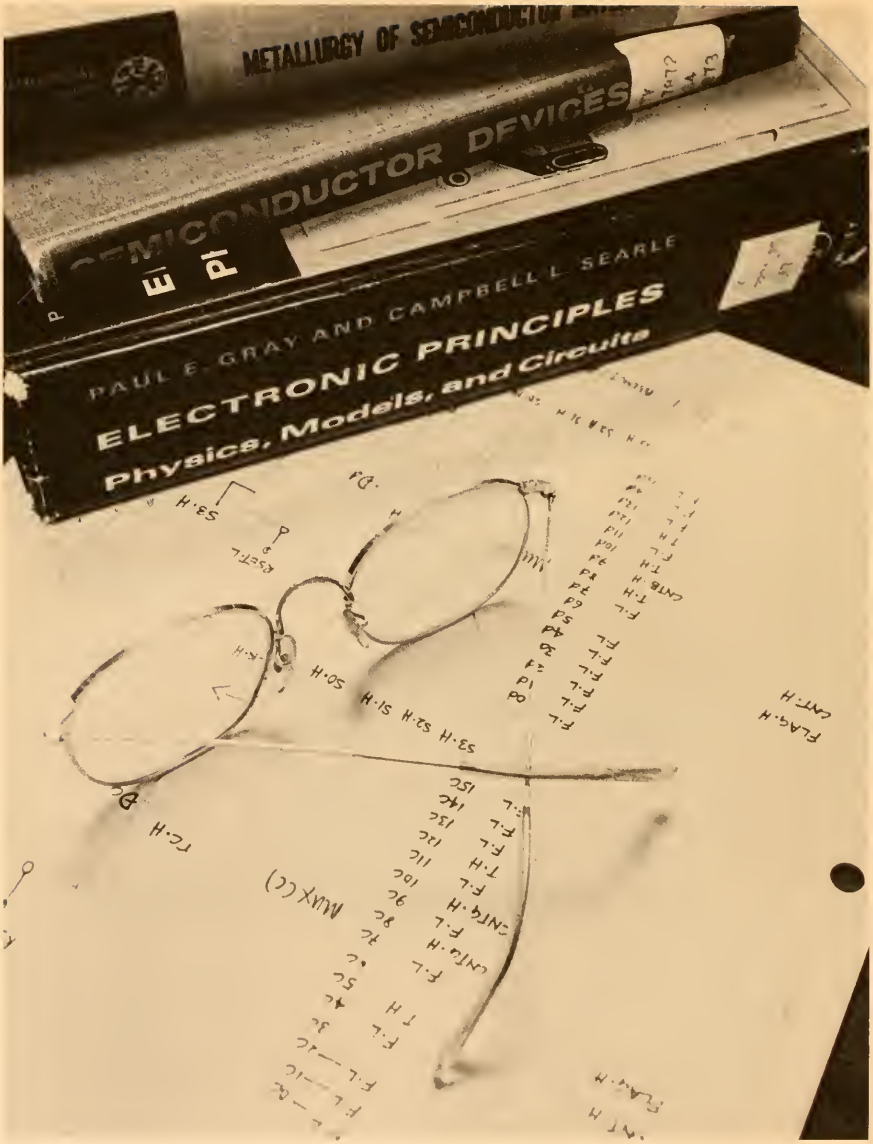
CH 621	Chemical Forensic Analysis with Laboratory	4
CH 631	Advances in Analytical Chemistry	3
CH 610	Administration of Justice	3
CH 614	Survey of Forensic Science	3
	Total credits	**19 or 20**

Fire Science

CH 640	Advanced Criminalistics II	3
CH 649	Fire Scene Investigation and Arson Investigation	4
CH 653	Physical Analysis in Forensic Science	3
CH 665	Legal Aspects of Fire and Arson Investigation	3

Plus any of the following:

CH 625	Chemistry of Fires and Explosions	3
CH 614	Survey of Forensic Science	3
CH 667	Fire and Building Codes, Standards and Practices	3
CH 668	Fire and Casualty Insurance Practices	3
CH 669	Dynamics, Evaluation and Prevention of Structural Fires	3
CJ 693	Criminal Justice Internship I	3
	Total credits	**19**


METALLURGY OF SEMICONDUCTOR
SEMICONDUCTOR DEVICES
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Pt
PAUL E. GRAY AND CAMPBELL L. SEARLE
ELECTRONIC PRINCIPLES
Physics, Models, and Circuits

COURSES

Unless otherwise indicated, all graduate courses carry three credit hours.
For purposes of brevity, course descriptions may not follow traditional rules of grammar.
Course descriptions are arranged alphabetically by prefix code, not by subject title.

Accounting

A 600 Accounting
The principles and procedures underlying the generation of financial accounting information. No credit.

A 601 Federal Income Taxation I
A study of tax policy and the basic principles of the federal income tax law taught at an advanced level of inquiry. Coverage entails the key concepts of gross income, adjusted gross income, deductions, exemptions, credits and special tax computations, with special attention given to the provisions of the Internal Revenue Code affecting individual taxpayers.

A 602 Federal Income Taxation II
Prerequisite: A 601. A continuation of Federal Income Taxation I emphasizing the basic provisions concerning dispositions of property: analysis of basis, recognition of gain or loss, capital asset transactions and non-recognition exchanges. Coverage extends to deferred payment sales and depreciation recapture.

A 603 Federal Income Taxation III
Prerequisite: A 602. An examination of the fundamentals of the federal taxation of deferred compensation. The course will focus on qualified and non-qualified retirement plans, individual and self-employed retirement plans and tax deferred annuities as developed by the Employment Retirement Income Security Act of 1974, and subsequent legislation. Deferred executive compensation arrangements, stock options, restricted property and various employee benefit plans will also be analyzed.

A 604 Corporate Income Taxation I
Prerequisite: A 602. A foundation course analyzing the basic federal income tax provisions affecting corporations and shareholders. Course coverage includes organization of the corporation, corporate capital structure, corporate distributions, stock redemptions, bail-out techniques and liquidations.

A 605 Corporate Income Taxation II
Prerequisite: A 604. Advanced study in the corporate tax area including subchapter S corporations, collapsible corporations, accumulated earnings tax, affiliated corporations and carryover of corporate tax attributes.

A 606 Corporate Income Taxation III
Prerequisite: A 604. A detailed analysis of the federal income tax rules covering corporate reorganizations and divisions. Also discussed are some of the non-tax aspects of corporate reorganizations such as S.E.C., anti-trust and business reasons for choice of particular method.

A 607 Tax Accounting
Prerequisite: A 601. Investigation of such areas as: problems of allocating income and deductions to the proper tax year, permissible tax accounting methods, depreciation, inventory methods, individual net operating losses, change in accounting method and comparison of business and tax accounting principles.

A 608 Estate and Gift Taxation
A comprehensive introduction to, and analysis of, the federal estate and gift tax laws including basic principles of estate planning. Procedures for preparation of the estate and gift tax returns are treated. Coverage is given to state death and inheritance taxes.

A 609 State and Local Taxation
Tax problems encountered at the state and local level by businesses engaged in interstate commerce. Federal limitations on the taxation of multi-state enterprises and jurisdictional problems are examined. Specific areas covered are: license to do business, net income, franchise, gross receipts, property, and sales and use taxes. Apportionment problems are examined in detail.

A 610 Consolidated Returns
Prerequisite: A 604. A thorough analysis of the federal consolidated tax return provisions including eligibility and whether to file a consolidated return; intercompany transactions and deferral concepts; basis in the disposition of stock of a subsidiary; computation of earnings and profits; and mechanics of preparing the consolidated return.

A 611 Income Taxation of Estates and Trusts

Prerequisite: A 602. Federal income taxation of estates, trusts, grantors, and beneficiaries. Topics are simple and complex trusts, throwback rules, taxable and distributable net income, assignment of income concepts and income in respect of a decedent, preparation of the estate and trust returns.

A 612 International Taxation

Prerequisite: A 604. Consideration of the federal income tax treatment of nonresident aliens and foreign corporations and the foreign income of U.S. residents and domestic corporations; comparison of alternative methods of engaging in operations abroad; foreign tax credit; allocations under code Section 482; Section 367 rulings; and the effect of tax treaties.

A 613 Taxation of Partnerships and Partners

Prerequisite: A 602. A study of the federal income tax problems encountered in the formation and operation of a partnership, including computations of taxable income, sale of a partnership interest, withdrawal of a partner, death or retirement of a partner, distribution of partnership assets and basis adjustments.

A 614 Federal Tax Practice and Procedure

Prerequisite: A 601. A study of the history and organization of the Internal Revenue Service, the selection of returns for audit and the review steps at the administrative level. Code provisions covered will include: filing requirements, statutory notices, restriction on assessment, statute of limitations, refund procedures, waivers, closing agreements, protests and rulings.

A 615 Research Project in Federal Income Taxation

Prerequisite: 15 graduate hours in taxation. A study of the techniques and tools of tax research. Reference sources include tax loose-leaf services, I.R.S. cumulative bulletins, court cases, congressional committee reports, textbooks, published articles. Mini research projects will be assigned for written submission.

A 616 Taxation for Management

Introduction to federal taxation and its impact on business decision making. Overview of the basics of federal taxation, its traps and tax planning opportunities. Complete overview of all areas of federal taxation to understand the tax planning for personal and business situations and the interrelationship of tax planning decisions. Areas of federal taxation covered are: individual income taxes, corporation income taxes, S Corporations, partnerships, income taxation of estates and trusts and estate and gift taxes. Not open to the M.S. in taxation program student.

A 621 Managerial Accounting

Prerequisite: A 600 or 6 credits in financial accounting. Accounting analysis for the managerial functions of planning, controlling and evaluating the performance of the business firm.

A 641 Accounting Information Systems

Prerequisite: A 621. An examination of the function and limitations of internal accounting information systems and their relationship to other decision-oriented business information systems.

A 642 Operational Auditing

Prerequisite: A 621. An analysis of the principles underlying and the procedures applying the function of auditing the results of firm-related business decisions.

A 650 Advanced Accounting Theory

Prerequisite: 6 hours of intermediate accounting. Considers the theoretical aspects of accepted accounting principles and their significance as a frame of reference for the evaluation of accounting practices. Considerable attention is focused on the role of regulatory agencies and professional accounting organizations with regard to their influences upon accounting theory and practice.

A 651 Financial Accounting Seminar

Prerequisite: A 650. An examination and evaluation of current literature in external accounting issues and related fields.

A 652 Advanced Auditing

Prerequisite: 3 hours of auditing. An analysis of the contemporary problems surrounding the attest function performed by the professional independent auditor. EDP auditing is examined in depth.

A 653 Accounting for the Not-for-Profit Organization

Prerequisite: 6 hours of intermediate accounting. An intensive examination of the contemporary views toward financial reporting for the not-for-profit organizations.

COURSES

A 654 Financial Statements: Reporting and Analysis
Prerequisite: Fl 651. An examination of financial reporting practices for financial statement analyses in view of modern theoretical and empirical financial decision-making research.

A 661 Managerial Accounting Seminar
Prerequisite: A 621. An examination and evaluation of current literature in internal accounting issues and related fields.

A 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. Course may be taken more than once.

A 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

A 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

A 696 Independent Study II
A continuation of Independent Study I.

A 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

A 699 Thesis II
A continuation of Thesis I.

Civil and Environmental Engineering

CE 601 Water Treatment
Advanced design principles and practices in water treatment processes; study of unit processes and operations; water treatment plant design; methods of population projection; water distribution systems.

CE 602 Wastewater Treatment
Advanced design principles and practices in sewage treatment processes; study of unit processes and operations; secondary sewage treatment plant design; sludge handling and disposal; sewage collection systems; introduction to advanced treatment methods.

CE 605 Solid Waste Management
Characteristics, volumes, collection and disposal of solid waste and refuse. Design of processing, recycling and recovery equipment, landfill design and operation, resource recovery, incineration.

CE 606 Environmental Law and Legislation
Review and techniques of enforcement of state and federal pollution control laws and regulations; effects on waste treatment criteria and design and evaluation of municipal ordinances; preparation of environmental assessments and impact statements.

CE 612 Advanced Wastewater Treatment
Prerequisite: CH 601, which may be taken concurrently. Theories and principles of advanced sewage treatment including nutrient removal, demineralization, distillation, ozonation, carbon filtration, ion exchange, nitrification; design of facilities; upgrading secondary plants.

CE 613 Industrial Wastewater Control
Prerequisite: CH 601. Characteristics of industrial wastes, volumes, sources, types; methods of volume reduction, waste segregation, recovery, recycle and waste treatment.

CE 616 Ground Water Waste Disposal
Study of effects of disposal of wastewaters in ground waters; travel of pollutants through soil; removal of nutrients and pollutants by soil interactions; leachate identification and control from refuse disposal areas.

CE 670 Special Topics-Civil Engineering
A study of related topics of particular interest to students and instructor. Course may be taken more than once.

CE 690 Research Project
Prerequisite: 18 graduate hours or permission of chairman of the department of civil engineering and adviser. Independent study under the guidance of an adviser into an area of mutual interest, each study terminating in a technical report of academic merit. Research may be in such environmental areas as water resources, stream pollution, solid waste management or air pollution.

CE 695 Independent Study in Environmental Engineering I
Prerequisite: permission of program coordinator. Independent study under the guidance of an adviser into an area designated by the program coordinator.

CE 696 Independent Study II
A continuation of Independent Study I.

CE 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

CE 699 Thesis II
A continuation of Thesis I.

Chemistry

CH 601 Environmental Chemistry
Areas of consideration: the sources, reactions, transport, effects and fates of chemical species in the water, soil and air environments, as well as the influence of human activities upon these processes.

CH 611 Special Topics in Advanced Organic Chemistry
Advanced course dealing with topics such as stereochemistry, photochemistry, natural products and mechanisms of organic reactions.

CH 621 Chemical Forensic Analysis with Laboratory
A course intended to present advanced techniques and new developments in the identification of various materials such as pigments, dyestuffs, food additives, pharmaceutical preparations, polymers, synthetic fibers and inorganic material products. Laboratory fee required. 4 credit hours.

CH 625 Chemistry of Fires and Explosions
An examination of the basic organic chemistry and combustion and explosive properties of flammable materials. The chemical principles underlying fires and explosions. Chemical properties of various synthetic materials, and the products of their combustion. Fire retardent materials and chemicals used in fire extinguishment.

CH 631 Advances in Analytical Chemistry
A course intended to provide background for the recent advances made in instrumentation and current analytical techniques.

CH 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

CH 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

CH 696 Independent Study II
A continuation of Independent Study I.

CH 698 Thesis I
Prerequisite: Completion of 15 credits of graduate work. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

CH 699 Thesis II
A continuation of Thesis I.

Computer & Information Science courses are listed under Industrial Engineering.

Criminal Justice

CJ 601 Seminar in Interpersonal Relations
Interpersonal communication in teaching, supervision and in various work relationships. The criminal justice worker as a resource person and facilitator of others is stressed. Humanistic psychology and interpersonal psychology provide the theoretical base.

CJ 604 Seminar in Theory and Philosophy of Law
The theory and philosophy of law and the relationship between law and society. Emphasis on the nature of the judicial process, the issues of law and personal morality, nonvictim crimes and the relationship of enforcement agencies to the rules of law.

CJ 605 Social Deviance
A survey of theories relating to the scope and nature of the crime problem. Consideration of the problems of deviancy, including social norms deviancy, mental disturbances, juvenile crime and the various possible and actual responses to deviancy. Various approaches to the problem of rehabilitation.

CJ 607 Seminar in Criminal Justice Institutions
The machinery of justice in theory and practice. The rule of law and its expectations in the actual administration of justice. Emphasis of the progressive changes in the development of children's and adolescents' courts, probation and classification clinics. Crime prevention and reforms of the criminal law. Special problems of justice and the poor. Administrative denials of justice, the insane offender, the white-collar criminal and social reconstruction through law.

COURSES

CJ 608 Law and Evidence
Comprehensive analysis of the rules of evidence. Topics include judicial notice, presumptions, the nature of real and circumstantial evidence, hearsay evidence, confessions and admissions and witnesses. Emphasis on evidence in criminal cases.

CJ 609 Criminological Theory
An analytical review of the multidisciplinary theories of criminal behavior. The impact of various theoretical constructs and concepts on practice will be critically evaluated.

CJ 610 Administration of Justice
A study of all the steps of the criminal justice system from the time the accused is arrested until sentencing to a correctional facility with an objective to review all the problems which arise during this process and to consider some possible solutions which will benefit the individual being processed without subverting the purposes of the process.

CJ 612 Criminal Justice Management
The development of the theory and practice of criminal justice management in the United States. Significant developments and ideas of those who have made major contributions to American criminal justice management.

CJ 614 Survey of Forensic Science
An introductory survey of forensic sciences and criminalistics, crime scene procedures and documentation, and methods of laboratory analysis for students specializing in security and investigation.

CJ 616 Advanced Crime Scene Investigation
An in-depth study of crime scene procedures, including recognition, protection, documentation and collection of physical evidence, scene documentation, scene search procedures, and reconstructions from evidence and scene patterns.

CJ 618 Probation and Parole: Theory and Practice
The philosophy, theory and methods employed in probation, parole and institutional treatment of the offender. The role of authority, casework, classification, treatment policy and administrative organization in determining the consequences of correctional practice.

CJ 619 Seminar in Comparative Criminal Justice Systems
Prerequisite: CJ 610. A cross-cultural study of police, court and correctional systems and methods.

CJ 620 Advanced Criminalistics I
The comparison and individualization of physical evidence by biological and chemical properties is presented in lectures and carried out in the laboratory. The theories and practice of microscopic, biological, immunological and chemical analysis are applied to the examination of blood, saliva, semenal fluid, hair, tissues, botanical evidence and other material of forensic interest.

CJ 621 Advanced Criminalistics I
1 credit hour. Laboratory fee required.

CJ 622 Learning Theory: Applications in Criminal Justice
Applications of the psychology of learning to police and correction settings.

CJ 624 Group Process in Criminal Justice
Small group interaction; both theoretical and experimental facets of group process are presented. Group counseling and encounter groups.

CJ 628 Introduction to Systems Theory
Concepts of systems theory and systems analysis in contemporary socio-technical environments.

CJ 630 Delinquency and Juvenile Crime
Prerequisite: CJ 610. A general introduction to the field of delinquency and crime, including all aspects of the social, legal and personal matrix out of which these forms of behavior emerge. Special emphasis will be given to the process and implications of delinquency labeling.

CJ 632 Advanced Investigation I
An in-depth study of modern principles and techniques of criminal and civil investigations. Management of investigations, use of witnesses, interviewing, polygraph, backgrounds establishment of MO, missing persons, surveillance and investigation of questioned deaths and death scenes.

CJ 633 Advanced Investigation II
An in-depth study of the principles and techniques of criminal and civil investigations. Investigation of fraud, embezzlement, white collar crime, property crimes, sexual assaults and other crimes against persons, extortion, kidnapping, drug trade and traffic accidents.

CJ 635 Statistics in the Public Sector

Statistical techniques applied to the public sector. Descriptive statistics: measures of central tendency and variability. Introduction to statistical inference including sampling distributions and tests of significance. Some techniques of nonparametric statistics, multiple regression and elementary decision theory. Analysis of variance and covariance.

CJ 637 Contemporary Issues in Criminal Justice

Topics selected by students relating to current issues and concerns in the field of criminal justice. Each student will be required to write a paper and deliver an oral presentation on a selected topic.

CJ 640 Advanced Criminalistics II

Introduction of advanced microscopic, chemical and instrumental methods with extensive "hands-on" experience provided by a laboratory section. Principles and methods of analysis of microscopic and macroscopic evidence such as glass, soil, papers, inks, dyes, paints, varnishes, explosives, fibers, drugs and other potential physical traces will be discussed in class.

CJ 641 Advanced Criminalistics II

1 credit hour. Laboratory fee required.

CJ 644 Police in Urban Society

An introduction to some of the current thinking and problems of policing in urban society. The course will examine such issues as the historical growth of the police, the role and mission of the police, measurement of police tasks, police corruption and other topics of interest to the seminar members. The course will stress the development of analytic thinking in defining and dealing with police problems.

CJ 649 Fire Scene Investigation and Arson Analysis

The techniques of crime scene documentation and investigation as they relate to fire and explosion scenes. Evidence recognition and collection. Laboratory analysis of fire scene, arson accelerant and explosion scene residues. Scientific proof of arson. Laboratory fee required. 4 credit hours

CJ 651 Problems in the Administration of Justice

A study of the interaction between the law enforcement official and the accused beginning with detention and/or arrest, during which time the official is seeking to secure incriminating evidence effectively while still protecting the Fourth, Fifth and Sixth Amendment constitutional rights of the "presumed innocent" accused.

CJ 653 Physical Analysis in Forensic Science

The classic firearms examination, classification and comparison of bullets and cartridges, toolmarks comparison and striation analysis, serial number restoration, document examination, voice print identification, fingerprints and polygraphy examination.

CJ 654 Physical Analysis in Forensic Science

1 credit hour. Laboratory fee required.

CJ 655 Bureaucratic Organization of Criminal Justice

Prerequisite: CJ 610. Through an application of modern organizational theory, a critical analysis of criminal justice agencies will be made. Emphasis will be placed on viewing criminal justice in theoretical perspective. Linkages between theory and operationalization of principles will be made.

CJ 658 Psychiatry and the Law

An examination of issues that relate to the interaction between the law and mental illness and the general role of forensic psychiatry.

CJ 660 Forensic Microscopy

Basic techniques of optical microscopy and the development of operational skills for the use of the microscope as a tool of evidence detection and evaluation. Microscopical measurements and analytical methods will be covered. Laboratory fee required. 4 credit hours.

CJ 661 Medicolegal Investigation and Identification

An introduction to procedures and techniques for medicolegal investigation of questioned death, and identification of deceased persons, including autopsy technique, odontological procedures and anthropological approaches.

COURSES

CJ 662 Forensic Toxicology
An in-depth analysis of forensic toxicological procedures and methods, determinations of metallic, volatile and soluble poisons, analysis for narcotic drugs and other drugs of abuse, and dosage form drugs that are commonly abused or found contributing to cause of death. Laboratory fee required. 4 credit hours.

CJ 663 Advanced Forensic Serology I
A comprehensive study of the theory and practice of biochemical and immunological procedures for blood and body fluid identification; ABO grouping procedures for whole blood and bloodstains; typing of Rh, MNSs and other red cell antigens in blood and blood stains; antiserum selection and evaluation. Laboratory fee required. 4 credit hours.

CJ 664 Advanced Forensic Serology II
A comprehensive study of the theory and practice of isoenzyme, serum protein and immunoglobulin genetic markers in human blood and body fluids. Electrophoretic and isoelectric focusing techniques. Interpretation of genetic marker results in blood individualization. Laboratory fee required. 4 credit hours.

CJ 665 Legal Aspects of Fire and Arson Investigation
The legal principles underlying and governing the conduct of criminal investigations, with particular emphasis on arson. The criminal law relating to arson, establishment of the crime, investigation and prosecution procedures in arson cases.

CJ 667 Fire and Building Codes, Standards and Practices
The study of building and fire codes and regulations, as they relate to the prevention and incidence of structural fires. Contemporary building and fire codes and practices and their enforcement. Model building codes. Fire prevention and control through building design.

CJ 668 Fire and Casualty Insurance Practices
A study of financial risk and decision making from the investigative point of view. Insurance rate making and relation to risk and other factors. Insurance adjustment and economic factors that must be considered in fire and accident investigations.

CJ 669 Dynamics, Evaluation and Prevention of Structural Fires
A detailed analysis of the evolution of modern structures, and the mechanical systems necessary to provide safety and comfort. The effect of the nature of structures and their mechanical systems on fire behavior. Structural bases and mechanical systems for fire protection and fire prevention.

CJ 670 Selected Issues
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

CJ 672 Innovative Treatment Programs in Corrections
Analyzing the theory and practice of a wide range of innovative correctional treatment modalities. Students will be given the opportunity to participate in various experiential exercises and to develop and propose new treatment approaches.

CJ 673 Biomedical Methods in Forensic Science
Methods and application of modern toxicology, biochemistry, pathology, dentistry and medicine in forensic science.

CJ 674 Biomedical Methods in Forensic Science
1 credit hour. Laboratory fee required.

CJ 675 Private Security Law
A review and examination of currently applicable Federal and State administrative, civil, criminal and constitutional laws as they relate to the private security industry. The framework of the course will include sources of authority and common law.

CJ 676 Security Management Seminar
Current problems, concerns, issues and legislation affecting the private security industry as they relate to and are of interest to the students and instructor.

CJ 677 Private Security in Modern Society
An introduction to current thinking and problems relating to the private security industry. The course will examine such issues as historical growth, role, mission and future of the industry. Other topics will include professionalization and ethics in the private security field.

CJ 690 Research Project I
Individual guidance on a research endeavor. 1-3 credits.

CJ 691 Research Project II
Prerequisite: CJ 690. 1-3 credits.

CJ 693 Criminal Justice Internship I
The student's formal educational development will be complemented by field placement experience in various criminal justice settings or agencies. Field experience will be supervised by designated agency and departmental personnel.

CJ 694 Criminal Justice Internship II
Prerequisite: CJ 693.

CJ 695 Independent Study
A directed independent learning experience, the topic and format to be agreed upon by the student and supervising faculty. 1-3 credits.

CJ 697 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress toward the completion of the thesis.

CJ 698 Thesis II
Prerequisite: CJ 697. A continuation of Thesis I.

CJ 699 Thesis III
A continuation of Thesis II.

Communication

CO 601 Basics of Business Media Production Techniques
A survey of the implementation of various media in the production of instructional and promotional materials specifically for the small and medium business and corporate media departments. The course will emphasize both theoretical and practical problems of audio and visual systems available to the business situation, paying particular attention to the vocabulary and skills which make it possible to transfer an idea from the board room to an effective media presentation. Laboratory fee required.

CO 605 Planning Audio Visual Systems for Business
Prerequisite: CO 601. Utilization of the technology learned in the basic course, and its application to the planning of an audiovisual center within a business or corporation setting. Students will be involved in projects of design and budget.

CO 609 Scripting the Media Presentation
Instruction on how to select the medium appropriate to the message, write a treatment, develop a story board, script the message and use proper format.

CO 613 Media Presentations for Business
Prerequisite: CO 601, CO 609. An opportunity for students to produce a major instructional or promotional media project for a specific business or corporation. Students will be responsible for finding a sponsor for this project which will be produced in one or any of the audio/visual formats discussed and practiced in prerequisite courses. Laboratory fee required.

CO 621 The Communication Process
Major emphasis on the role of communication in a democracy and the effects of communication content. Brief treatment of content analysis techniques, person-to-person communication and barriers to the flow of communication.

CO 670 Selected Topics
Prerequisite: permission of the adviser. An in-depth examination of a topic in the field of communication which reflects the special research of a faculty member, or the special interest of a group of students. May be taken more than once.

CO 693 Internship
A program of field experience set up by the student and approved by the program adviser under the tutelage of a professional in the field.

CO 695 Independent Study I
A planned program of individual study or research in communication under the supervision of a member of the faculty.

CO 696 Independent Study II
A continuation of Independent Study I.

CO 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings with the adviser of the individual student's progress in the preparation of a thesis.

CO 699 Thesis II
A continuation of Thesis I.

COURSES

Dietetics and Institutional Management

DI 635 Applied Dietetics for Health Care Professionals
A critical appraisal of persons with medical and physical problems. The interpretation of dietary and biochemical information gathered on those persons, followed by the nutritional intervention needed. Recommendations will be based on metabolic requirements, monitoring laboratory values, prescribed medications, the nutritional status of the person and the severity of the disease.

DI 690 Research in Dietetics and Institutional Management
Emphasis will focus toward the individual student and individual interests that may be applicable to current research in dietetics and institutional literature. Research must be conducted under the supervision of a faculty member.

DI 695 Independent Study I
A planned program of individual study under the supervision of a faculty member.

DI 696 Independent Study II
A continuation of Independent Study I.

DI 698 Thesis I
Prerequisite: 15 graduate hours completed, and permission of the program adviser. Periodic meetings and discussions of the individual student's progress in the preparation of a graduate thesis.

DI 699 Thesis II
Prerequisite: DI 698. A continuation of DI 698, Thesis I.

Economics

EC 600 Basic Economics
A basic theoretical foundation for students who have a deficiency in economics. The course is a review and refresher of basic economic principles. No credit.

EC 603 Microeconomic Analysis
Prerequisite: undergraduate Principles of Economics or EC 600. Topics in resource allocation and price determination. Theories of choice of consumers, firms, resource owners under monopoly, monopsony, competition and alternative market forms.

EC 604 Macroeconomic Analysis
Prerequisite: undergraduate Principles of Economics or EC 600. An examination of the roles of consumption, investment, government finance and money influencing national income and output, employment, the price level and rate of growth. Policies for economic stability and growth.

EC 608 Economics for Public Administrators
An examination of the roles of consumption, investment, government expenditure and money influencing national income, output, employment and price level, and growth rate. Special emphasis upon the roles of fiscal and monetary policy and the economics of contemporary social problems.

EC 621 Economic History of the Western World
Survey of the economic history of Europe and the United States, with emphasis on the development of modern economic systems, including capitalism, socialism and communism. Beginning with the Industrial Revolution, economic thought is followed up to, and including, Post-WW II transformations.

EC 625 Industrial Relations
A survey of the problems, strategies and policies of management and unions in conflict situations and in harmonizing labor-management relations. Labor legislation, collective bargaining and alternative strategies, productivity and other problem areas in labor-management relations are examined.

EC 627 Economics of Labor Relations
A survey of labor economics and the economics of labor relations using both the tools of economic analysis and institutional analysis. The emphasis is on the application of economics to labor problems and labor-management relations.

EC 629 Public Policies Toward Business
A survey of the economic aspects of governmental and business relations. Emphasizes the concept of public control over certain types of business and certain forms of business activity. Combination movements, pricing procedures, anti-trust laws and agencies enforcing them, regulation of transportation and public utilities, rate-making for transport, pricing public utility services, consumer protection and social responsibility.

EC 630 Structure of American Industry

An examination of several major U.S. industries such as automobiles, steel, petroleum, defense and agriculture. Some contemporary problems are analyzed. A study of the powerful economic forces acting on these industries and how firms react to these forces.

EC 633 Managerial Economics

Prerequisite: EC 603. A study of the application of the major tools of economic analysis to the problems encountered by management in the organization of the firm. Topics include the theory and measurement of consumer demand, measurement and control of costs, the effects of public policy upon managerial decisions and pricing techniques and the allocation of capital within the firm.

EC 635 Comparative Economic Systems

Examination of capitalism, socialism, communism and other economic systems with respect to their theoretical foundations and practical applications, including the interrelationships among economic, political and social institutions.

EC 641 International Economics

A study of the basic theory and major institutions of international economic relations. Examines critically the techniques and background of protectionism and free trade, and the analysis of customs, unions and price and exchange rate changes. The theory of comparative advantage; the gains from trade and the terms of trade. The balance of payments and national income. Capital movements and economic growth. The evolution of the world economy and international economic institutions. Effects of growth on trade, and trade on growth. Monopolistic practices in international trade. The international monetary system and international monetary reforms.

EC 645 Seminar in Macroeconomic Policy

Prerequisite: EC 604. The impact of fiscal and monetary policy upon employment, output and prices. An analysis of past and current economic controls and their impact upon the economy.

EC 650 Economics of Petroleum

A survey of the economic development and growth of the American oil industry as part of the international oil industry. Economic aspects of the energy crisis, oil reserves, conservation, OPEC, U.S. energy conservation program, oil pricing and oil substitutes. Policies of oil-exporting nations, oil companies and oil-consumer nations throughout the world will be given special attention.

EC 653 Econometrics

Prerequisites: EC 603-604, QA 604-605, or permission of the instructor. A presentation of the important statistical concepts used in econometrics. Topics covered are regression theory, multiple regression, regression extensions, correlation, serial correlation, correlated regressor and error, the identification problem, selected estimating techniques.

EC 665 Urban and Regional Economic Development

Structure of the urban and regional economy; goals, processes, problems and policy in urban and regional economic development.

EC 668 Economics of Crime

Topics such as economic costs of crime; the costs of preventing crime; the impact of white collar crime on American society.

EC 670 Selected Topics

A study of selected issues of particular interest to the students and instructor. May be taken more than once.

EC 687 Collective Bargaining

Prerequisite: EC 625. Emphasis on the negotiating process. The labor contract as it involves wages, worker security, management authority and handling of grievances arising during the life of the contract.

EC 690 Research Project

Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

EC 692 Readings in Economics

EC 695 Independent Study I

A planned program of individual study under the supervision of a member of the faculty.

COURSES

EC 696 Independent Study II
A continuation of Independent Study I.

EC 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

EC 699 Thesis II
A continuation of Thesis I.

Electrical & Computer Engineering

EE 603 Discrete and Continuous Systems I
Prerequisite: M 624. Discrete and continuous linear system models. State variable representation and transfer function representation. Feedback control systems, stability, performance and design criteria. State variable and compensation synthesis. Nonlinear systems, describing functions and phase plane techniques. Stability methods of Liapunov.

EE 604 Discrete and Continuous Systems II
Prerequisite: EE 603.

EE 605 Modern Control Systems
Prerequisite: EE 604. Advanced topics in control systems. May include optimal control, dynamic programming, variational approaches, adaptive control, sampled data systems, signal modulated systems, random signal methods.

EE 608 Computer-Aided Design
Prerequisite: M 624. Numerical algorithms for engineering systems analysis. Design problem and performance measures. Optimization of networks and filters. Parameter sensitivities. Device modeling and equivalent circuits.

EE 615 Introduction to Computer Logic
Prerequisite: IE 603 (or equivalent). Introduction to logic elements and to their application in digital networks for processing numerical data. The course deals with analysis and design techniques of combinational and sequential networks and includes a discussion of logic variables, switching functions, optimal realizations, multivariable systems. Design examples will include logic circuits for addition, multiplication, counting, parity generation and detection.

EE 630 Electronic Instrumentation I
Prerequisite: permission of instructor. Design of modern electronic instrumentation. Circuit and system examples, evaluation and design techniques. Emphasis on practical applications including design theory and the circuit techniques used in linear integrated devices. Variety of electronic instrumentation including computer interfaces, signal conditioners, waveform generators and shapers, filters, V/F, A/D, D/A converters and other special purpose circuits.

EE 631 Electronic Instrumentation II
Prerequisite: EE 630.

EE 634 Digital Signal Processing I
Prerequisite: EE 603. A study of the theories of digital signal processing and their applications. Topics include discrete time signals, Z transform, the discrete Fourier Transform, the FFT, digital filter design techniques, homomorphic signal processing and various applications of digital signal processing.

EE 635 Digital Signal Processing II
Prerequisite: EE 634.

EE 640 Computer Engineering I
A study of computer structure and organization. Peripheral devices, addressing memory, assembler instruction set, programmed requests, real-time software modules, assembler language programming. Laboratory fee required.

EE 641 Computer Engineering II
Prerequisite: EE 640. Applications of computers to physical systems for monitor control functions. Interfacing using hardware modules. Case studies may include synchronous motor transient studies, shock wave phenomena, dynamic chemical reaction monitoring and control, signal processing, sampled data control systems. Students must complete a project. Laboratory fee required.

EE 645 Power Systems Engineering I
Prerequisite: permission of instructor. Concepts and methods of analysis and design of modern power systems. This will include the network representation of power systems, matrix methods, symmetrical components and the use of the computer in the solution of problems such as short circuit fault calculations, load flow study, economic load dispatching and stability. Other topics may include protection, relaying or transmission system design.

EE 646 Power Systems Engineering II
Prerequisite: EE 645.

EE 650 Random Signal Analysis
A study of the theory of random signals and processes. Topics include a review of probability, random signals, auto and cross correlation, power density, spectral analysis of random signals.

EE 658 Microprocessors — Theory & Applications
A study of the techniques and methods of designing digital systems using a microprocessor as the basic unit. Microcomputer assembly language, operating systems, input/output devices, programmable read-only memories and interfacing.

EE 670 Special Topics — Electrical Engineering
Prerequisite: permission of instructor. A study of selected topics of particular interest to students and instructor. Course may be taken more than once.

EE 695 Independent Study I
Prerequisite: permission of instructor. A planned program of individual study or research under the supervision of a faculty member.

EE 696 Independent Study II
A continuation of Independent Study I.

EE 698 Thesis I
Prerequisite: completion of 15 credits of graduate work. Individual student project under supervision of faculty adviser. Written and oral report required. Student must enroll in 6 credits of thesis.

EE 699 Thesis II
A continuation of Thesis I.

Executive M.B.A.

The program consists of twenty (20) courses, each four sessions in length. The courses are grouped into logically interrelated clusters, i.e., The Quantitative Group, The Industrial Relations Group, The Finance Group, The Marketing Group and the Management Group.

EXID 903 The Communication Process
Communication needs in corporate staff development, cohesion, cooperation and consensus through effective communication management. The role of communication in thought processes and problem solving.

Quantitative Group

EXID 915 Quantitative Decision Making
Examination of statistical methods and their relevance to decision making under uncertainty. Includes an introduction to probability, elements of statistical decision theory and Bayesian analysis.

EXID 918 Managerial Economics
Application of economic analysis to business forecasting planning and policy formation. Topics include cost-benefit analysis, cost estimation and break-even analysis.

EXID 936 Statistics and Forecasting
Examination of the utility and method of traditional statistical techniques as aids in the decision making process. Topics include descriptive and inferential statistics, regression, time series and an introduction to forecasting.

EXID 939 Operations Research and Management
Analysis of management science techniques from the executive perspective. Focus on understanding the value of inventory and systems models, forecasting methods and simulation techniques.

EXID 960 Computers and Management
Analysis of the uses and abuses of management information systems as well as hardware and software acquisition.

Industrial Relations Group

EXID 909 Business and Government Relations
Recent developments and future directions of the business and government interface. Includes contracts, affirmative action, labor negotiation machinery, regulatory agencies and anti-trust legislation.

COURSES

EXID 948 Labor and Management Relations

Contemporary issues in labor-management relations including collective bargaining, grievance-arbitration procedures and the expanding impact of organized labor on manpower management.

EXID 945 Human Resources Management

The effective management of the aggregate human resource in the modern organization. Analysis of personnel policies and procedures, manpower planning and employee training and policies.

Finance Group

EXID 912 Financial Accounting

Analysis of the objectives, standards and methods embodied in the financial accounting information system. Emphasis is upon financial reporting standards as they relate to financial position, results of operations and changes in financial position.

EXID 924 Financial Management I

Analysis of financial decision models for investment, financing and dividend decisions of the profit-oriented firm. Includes capital budgeting, capital structure and the cost of capital and dividend policy.

EXID 927 Financial Management II

Analysis of financial decision models for the management of working capital. The management of current assets and the related financing mixture.

EXID 942 Managerial Accounting

Examination of accounting tools for planning, controlling and evaluating the economic performance of the firm. Topics include budgeting, flexible budgets, standard costs, contribution reporting, responsibility accounting and decision analysis.

Marketing Group

EXID 933 International Business

Examination of the theory of international trade, exporting and importing, cultural dynamics and comparative management and marketing systems.

EXID 930 Marketing Management

The marketing concept and corporate decision making with respect to product planning, advertising and promotion, sales management, distribution channels and price policies.

EXID 951 Marketing Management Seminar

Current issues and topics in marketing management. Includes recent regulatory rulings, consumerism and related areas.

Management Group

EXID 906 The Management Process

The role of executives and managers in administrative and operational processes. Topics include organizational goals and structure, planning and performance controls and resource management.

EXID 954 Organizational Development

Various methods for effective organizational development in contemporary environments. Analysis of means to improve existing organizations in consideration of past history and changing value structures.

EXID 957 Corporate Policy and Strategy

Analytical frameworks are developed through the study of major corporate policies and strategies. Focus is upon the total organization and comprehensive operation procedures of the complex corporation.

EXID 921 Executive Development Seminar

Mechanisms for identifying and discussing the developmental needs of subordinate managers. Using subordinate involvement in decision-making as a vehicle, several management development techniques are examined including contrived and actual cases, role playing, individual feedback and group exercises. The module is concluded by a computerized business game in which participants may utilize the knowledge obtained in earlier modules to manage firms in competition.

Finance

FI 615 Finance
Prerequisites: EC 603-604, QA 604, QA 605, A 621. The investment, financing and valuation of business firms. Topics include: discounted cash flow, return on investment, investment decisions under uncertainty, long- and short-term sources of funds, optimal financial structure, cost of capital, dividend policy. (Expansion, merger, working capital management and failure and reorganization may also be covered.)

FI 617 Financial Institutions and Capital Markets
Prerequisites: FI 651, FI 615. Financial management of financial institutions and capital market. Analyzes the institutional and theoretical structure of monetary change and the manner in which financial institutions and markets transmit and influence the impact of monetary policy. Special attention to the role of non-monetary financial intermediaries, the structure and regulation of capital markets and the functions of market yields as the price mechanism that allocates saving to various categories of economic investments.

FI 619 Monetary and Central Banking Policy
Prerequisite: FI 615, FI 651. The impact of monetary change upon employment, output and prices; the formulation and execution of Federal Reserve policy designed to regulate money, credit and interest rates.

FI 620 Working Capital Management and Planning
Prerequisites: FI 615, FI 617, FI 651 or permission of instructor. The examination and understanding of working capital management, leasing, mergers and acquisitions and overview of multinational finance.

FI 645 Corporate Financial Theory
Prerequisites: FI 617, FI 651 and permission of the finance adviser. An analysis of the theoretical structure supporting optimum financial decision making by the business firm. Emphasis is placed upon the determination of the combination of investment, financing and dividend decisions that maximizes the valuation of the firm within a security market context.

FI 649 Security Analysis
Prerequisite: FI 651. An analysis of the determinants of valuation for fixed income securities, common stocks, convertible securities, options and common stock warrants. Emphasis is placed upon the information and techniques relevant to security valuation and selection and the structure and workings of the securities markets.

FI 651 Portfolio Management and Capital Market Analysis
Prerequisites: FI 615, QA 605 or permission of instructor. Considers the theoretical structure for the procedures (security analysis, portfolio analysis and portfolio selection) which constitute the process of portfolio management, as well as their limitations in practice. Additional attention is placed upon the logical implications of portfolio analysis for capital market theory.

FI 655 Speculative Market Analysis
Prerequisites: FI 617, FI 651. A conceptual and operational examination of the markets in which financial futures and commodities are traded, the participants and major exchanges including an analysis of the major futures traded and the factors influencing their prices. Option valuation theory is also covered.

FI 661 Real Estate: Principles and Practices
Prerequisite: FI 615. Real estate from the investor's point of view. Impact of taxation on real estate investments. Emphasis on commercial land use through the use of case studies and problems.

FI 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

FI 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

FI 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

FI 696 Independent Study II
A continuation of Independent Study I.

FI 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

FI 699 Thesis II
A continuation of Thesis I.

COURSES

Fire Science

FS 625 Chemistry of Fires and Explosions
An examination of the basic organic chemistry and combustion and explosive properties of flammable materials. The chemical principles underlying fires and explosions. Chemical properties of various synthetic materials, and the products of their combustion. Fire retardent materials and chemicals used in fire extinguishment.

FS 667 Fire and Building Codes, Standards and Practices
The study of building and fire codes and regulations, as they relate to the prevention and incidence of structural fires. Contemporary building and fire codes and practices, and their enforcement. Model building codes. Fire prevention and control through building design.

FS 668 Fire and Casualty Insurance Practices
A study of financial risk and decision making from the investigative point of view. Insurance rate making and relation to risk and other factors. Insurance adjustment and economic factors that must be considered in fire and accident investigations.

FS 669 Dynamics, Evaluation and Prevention of Structural Fires
A detailed analysis of the evolution of modern structures, and the mechanical systems necessary to provide safety and comfort. The effect of the nature of structures and their mechanical systems on fire behavior. Structural bases and mechanical systems for fire protection and fire prevention.

FS 670 Special Topics
An examination and evaluation of the current and future problems faced by today's fire, public safety, insurance and security professionals.

Hotel and Restaurant Management

HR 610 Content Seminar in Hotel and Restaurant Management Dietetics and Tourism Administration
Detailed analysis of recent developments in food service, lodging, dietetics, institutions and tourism. Attention will be given to quality assurance and determination of job priorities.

HR 625 Supervisory and Leadership Development in Hotel, Restaurant, Dietetics and Tourism Operations
An incident approach is used to provide a cross section of supervisory situations. Emphasis is given to particular situations involving leadership development, ethical behavior and formal and informal organizations of social behavior.

HR 630 Personnel and Labor Relations in Hotel, Restaurant, Dietetics and Tourism Operations
Topics include organizational behavior, personnel selection, placement, supervision, job evaluation, wage and salary administration, motivation, morale and union-management relations. Case studies and role playing are integral parts of the course.

HR 640 Haute Cuisine for Hospitality Executives
An advanced course which covers the study and preparation of classical food items and service of the major world cuisines. Emphasis is placed on the geographical, socioeconomic and religious influences which determine the cultural patterns of cuisine. Laboratory fee required.

HR 655 Development of Hotel, Restaurant, Dietetics and Tourism Operations
Examines the processes for developing profitable hospitality services. Some of the characteristics, opportunities, risks and decisions involved in starting hospitality operations are studied. Emphasis is on alternative financing methods and avenues.

HR 670 Special Topics in Hotel, Restaurant, Dietetics and Tourism Operations
An in-depth examination of topics in the field of hospitality which reflect the special interests of the students. Focus will be on the managerial skills needed for organizational decision making, aggregation of resources, political power within the organization and the allocation of resources and work flow.

HR 690 Research in Hotel and Restaurant Management
Emphasis will focus toward the individual student and individual interests that may be applicable to current research in hospitality literature. Research must be conducted under the supervision of a faculty member.

HR 695 Independent Study I
A planned program of individual study under the supervision of a faculty member.

HR 696 Independent Study II
A continuation of Independent Study I.

HR 698 Thesis I
Prerequisite: 15 graduate hours completed, and permission of the program adviser. Periodic meetings and discussions of the individual student's progress in the preparation of a graduate thesis.

HR 699 Thesis II
Prerequisite: HM 698. A continuation of HM 698, Thesis I.

Humanities

HU 601-602 Themes in Western Thought and Culture: Greece, Rome
Readings in primary sources of some of the classics in Western thought from Homer to the Renaissance. The place of these selected works in the development of Western ideas.

HU 606 Humanism and Its Methodology
A classic idea, work of art, musical composition, work of literature, historical event and the variety of the critical appraisals of it.

HU 611 Historical Views and Views of History
A survey of modern Western historiography with particular attention to the methodology of recent and contemporary historians.

HU 616 Art and Thought of the Renaissance
A study of the achievements of some of the major figures of the Renaissance in art, music, philosophy, natural science, literature, drama.

HU 621 The Age of the Enlightenment
Philosophical background of the Age of Reason and its effects upon the art, music and literature of the period.

HU 626 The Age of Darwin
Scientific thought of the period and its effect upon religious and philosophical ideas, upon art and literature, and upon the development of sociological thought.

HU 631 Culture and Ethics in the Modern Age
Popular attitudes and rational concepts that determine the structure of contemporary America.

HU 636 Philosophical Thought
An examination of the changes in meaning and use of such enduring themes as certainty, existence, God, justice, knowledge, law, right, good.

HU 638 Structuralism and Structural Linguistics
An introduction to the basic principles of structuralism, with special emphasis given to elements of language and linguistic theory.

HU 641 Technology and Human Values
The influence of applied science and technology on our conceptions of ourselves, our society and our environment.

HU 646 The Social Sciences in Our Time
How the social sciences are related to the humanities; estimates of the human condition in the light of developments in sociology, history, political science, psychology and economics.

HU 651-659 Topics in Humanities

HU 661-669 Topics in History

HU 671-679 Topics in Philosophy

HU 681-689 Topics in the Natural, Physical and Social Sciences

HU 691-695 Independent Study
A planned program of individual study or research under the supervision of a member of the faculty.

HU 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis or portfolio.

HU 699 Thesis II
A continuation of Thesis I.

International Business

IB 643 International Business
Prerequisites: EC 603, EC 604. An introduction to the political, economic, technological and cultural setting of international business. Topics include the problems, policies and operational procedures of the multinational corporation, including the adjustment to foreign cultures and governments. The review of the development, organization and structure of the international firm will also be analyzed.

COURSES

IB 644 International Trade and Finance
Prerequisites: IB 643, MK 609. Focus on foreign exchange risk management and upon the financing of imports and exports. Major attention will also be paid to long-run foreign investment decisions, their evaluation, implementation and contol.

IB 645 Comparative International Business Environments
Prerequisites: IB 643, MK 609. A comparative approach to the study of the non-economic aspects of foreign markets of several representatives areas in the world. The focus is on the interaction between the sociocultural environment of host nations and the multinational firm.

IB 651 International Marketing
Prerequisites: IB 643, MK 609. The application of marketing, principles, techniques in a global environment. A managerial approach to international marketing as it pertains to product policies, market channels, pricing, advertising in a foreign market. Emphasis is placed upon marketing in different cultural settings.

IB 652 Multinational Business Management
Prerequisites: IB 643, MK 609. An examination of global strategy, ownership control, organization, and resource management. Major attention will also be given to international risk analysis.

IB 670 Selected Issues
A study of selected issues of particular interest to the student and instructor. May be taken more than once.

IB 690 Research Project
Prerequisite: 15 graduate hours and permission of the instructor. Independent study under the supervision of an adviser.

IB 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

IB 696 Independent Study II
A continuation of Independent Study I.

IB 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

IB 699 Thesis II
A continuation of Thesis I.

Industrial Engineering & Computer Science

IE 601 Introduction to Operations Research/Management Science
Prerequisites: IE 607. Introduction to the techniques and philosophies of management science and operations research. Topics include linear programming, inventory analysis, queuing theory, dynamic programming, decision analysis and other management techniques.

IE 602 Computing Fundamentals
An introduction to computers, computing and computer science, including consideration of basic concepts and technology, development of automatic computation, computer applications, organization of hardware and software systems, algorithms, flowcharts, elementary programming, number systems, survey of programming languages.

IE 603C COBOL Programming
Prerequisite: IE 602 or programming experience. A first course in the business-oriented programming language COBOL. It will cover all major aspects of that language. Several common algorithms will be taught as part of the process of learning the language. Students will be expected to design, code and run several COBOL programs. Computer use fee required.

IE 603F FORTRAN Programming
Prerequisite: IE 602 or programming experience. A first course in the scientifically-oriented programming language FORTRAN. It will cover all major aspects of that language. Several common algorithms will be taught as part of the process of learning the language. Students will be expected to design, code and run several FORTRAN programs. Computer use fee required.

IE 603P Pascal Programming
Prerequisite: IE 602 or programming experience. A first course in the programming language Pascal. It will cover all major aspects of that language. Several common algorithms will be taught as part of the process of learning the language. Students will be expected to design, code, and run several Pascal programs. Computer use fee required.

IE 603S LISP Programming
Prerequisite: IE 602 or programming experience. This course will introduce students to the symbol manipulation language LISP, which is often used in artificial intelligence. It will cover all major aspects of that language. Several common algorithms will be taught as part of the process expected to design, code, and run several LISP programs. Computer use fee required.

IE 604 Management Systems
Techniques of industrial and governmental systems management including general systems and organizational theory.

IE 605 Advanced Business Programming
Prerequisite: IE 603C. Advanced programming in the COBOL language, including selected algorithms within an applied business systems context. Computer use fee required.

IE 606 Advanced Technical Programming
Prerequisites: IE 603F and either M610 or permission of the instructor. Advanced programming in the FORTRAN language, including selected algorithms in a scientific and technical context. Computer use fee required.

IE 607 Probability Theory
Prerequisite: M 610 or equivalent. Probability of events. Random variables and expectations; discrete and continuous distributions; important standard distributions and applications; moment generating functions; central limit theorem.

IE 608 Assembly Language
Prerequisite: IE 603. Introduction to assembly language programming, including study of instruction types and operation, assembly language syntax and features, explicit use of memory, macros, subprograms, interrupts, I/0 conversions. Major functional characteristics of the computer and its peripherals will be studied. Computer use fee required.

IE 609 Descriptive and Inferential Statistics
Prerequisite: IE 607 or equivalent. Inferential statistical designs, including basic statistical tests and analysis of variance. Statistical theories and application of correlation analysis, multiple linear regression, non-linear regression and analysis of covariance.

IE 610 Computer Systems Analysis and Selection
Prerequisites: IE 604 and one of IE 605, IE 606, IE 648. Recommended is IE 608. Study of performance evaluation and selection of computer hardware and software systems. Consideration of requirements determination, computer structure and capability, performance testing techniques, decision and planning methods.

IE 611 Budgeting and Control
Prerequisite: A 600. An analytic approach as applied to the principles and policies of operational budgeting and control of expense and capital investments. Includes forecasting techniques, development of totally integrated systems with traditional financial statements and controls from top management to first-line supervision.

IE 612 Managerial Interactions I
An interdisciplinary systems approach to human behavior in organizations with emphasis on the impact of industrial engineering methods on organizational performance. The first course will deal with individual motivation and face-to-face interaction in managerial roles; the second concentrates on organizational development, job enrichment and modern work attitudes.

IE 613 Managerial Interactions II
Prerequisite: IE 612.

IE 614 Data Information Systems
Prerequisites: IE 603 or equivalent, IE 604. Introduction to automated information systems planning and operations and their impact on management decision making, control functions and communication capabilities. An overview of concepts and procedures with applications in urban environments, large organizations and governmental agencies. Techniques presented include PERT/CPM, Gantt charting, cost-benefit analysis.

IE 615 Transportation and Distribution
Prerequisite: IE 601. Introduction to transportation science with emphasis on physical distribution problems. Survey of operations research models and optimization strategies and their roles in transportation systems management.

IE 621 Linear Programming
Prerequisites: M 610 or equivalent, IE 601 or equivalent. Thorough coverage of the techniques and applications of linear programming, a powerful operations research tool for optimal allocation of limited resources in linear systems.

IE 622 Queuing Theory
Prerequisites: IE 607 and M 610. Elements of queuing theory including finite and infinite cases. Single server and multiple server parallel channels, series queues and special cases are analyzed. Experimental methods, including simulation, are presented in the context of industrial environments.

IE 623 Decision Analysis
Prerequisite: IE 609. Decision theory, game theory; benefit-cost analyses under uncertainty; advanced engineering economic analysis.

COURSES

IE 624 Quality Analysis
Prerequisite: IE 609. Concepts of quality and statistical quality analysis. Sampling techniques and decision processes.

IE 625 Advanced Mathematical Programming
Prerequisites: IE 621 and IE 606. A course in advanced mathematical programming techniques. Integer programming, goal programming, and multiple objective linear programming techniques will be covered. Computer applications will be demonstrated. Computer use fee required.

IE 643 Reliability and Maintainability
Prerequisites: IE 609 or QA 604. The basic theory and methodology of reliability and maintainability, including application of discrete and continuous distributions and statistical designs. Reliability, estimation, structure models and growth models.

IE 648 Data Structures
Prerequisite: IE 603P. An examination of data structures, their function and uses. Topics will include basic data representations, arrays, stacks, queues, linked lists, trees, graphs, hashing. Study of the relation between data structures and algorithms, such as sorting and searching, including elementary computational complexity analysis. Computer use fee required.

IE 651 Human Engineering I
A broad coverage of the physiological and psychological aspects of man and the environment in which he lives and works. Topics include human factors, motivation, aspects of experimentation and design. Laboratory fee required.

IE 652 Human Engineering II
Prerequisite: IE 651. Continuation of Human Engineering I. Laboratory fee required.

IE 655 Manufacturing Analysis
Prerequisites: undergraduate courses in manufacturing or manufacturing work experience and consent of instructor. This course presents the principles of the theory of metal cutting and metal working for improving the manufacturing operations involving metal machining and metal working. It provides an opportunity for the students to thoroughly understand the experimental approaches used in manufacturing. Laboratory fee required.

IE 658 Database Systems
Prerequisites: IE 648. A survey of database systems, their purpose, structure, function, and use. Topics will include an overview of DB systems, major DB models, design and implementation methods in DB models, introduction to typical DB systems, internal operation of DB systems.

IE 660 Artificial Intelligence
Prerequisites: IE 603S and IE 648. A study of the fundamental goals and methods of artificial intelligence, the field using computers to realize apparent intelligent behavior. The course will include the design and implementation of artificial intelligence programs using the LISP language. Computer use fee required.

IE 662 Computer Graphics
Prerequisites: IE 648 and M 610. A knowledge of FORTRAN is recommended but not required. The mathematical foundations for computer graphics and introduction to the current state of the art to graphics programming. Topics include 2D and 3D viewing, geometric transformations, clipping, segmentation, user interaction, curves, surfaces, modeling and object hierarchy. Computer use fee required.

IE 670 Current Topics in Computer and Information Science
Prerequisites: IE 648 or permission of the instructor. An examination of new developments or current practices in computer and information science. A topic will be selected for thorough study; possible subject areas include data structures, recent hardware or software advances, specialized applications. Content may vary from trimester to trimester.

IE 671 Current Topics in Operations Research
Prerequisites: IE 601, IE 607, IE 621 or permission of the instructor. An examination of new developments or current practices in operations research. A topic will be selected for thorough study; possible subject areas include non-linear programming, network theory, scheduling techniques, specialized techniques, specialized applications. Content may vary from trimester to trimester.

IE 672 Current Topics in Industrial Engineering

Prerequisite: IE 601 or permission of the instructor. An examination of new developments or current practices in industrial engineering. A topic will be selected for thorough study—possible subject areas include reliability, production engineering, human factors, specialized applications. Content may vary from trimester to trimester.

IE 679 Computer Organization

Prerequisites: IE 608 and IE 648. An examination of the architecture and functional characteristics of modern digital computers, of conventional as well as state-of-the-art organization. While not a design course, it will provide the experienced computing student with detailed information needed for full understanding of issues arising in many areas of computer science work. Topics include functional aspects of a processor, machine language, micro-programming, interrupt systems, peripherals and I/O control, memory structures, parallel and pipelined architecture, supercomputers, non-Von Neumann machines.

IE 680 Software Engineering

Prerequisites: IE 648. For the experienced computing student involved with software system management, design and programming. Topics include analysis of complexity, efficiency and improvement of code, strategies for large programming projects, systematic design methods, testing and debugging the human-machine interface. Computer use fee required.

IE 681 System Simulation

Prerequisites: IE 601 and IE 606 or IE 603F and permission of the instructor. A study of the behavior of systems using computer simulation models of their organizational structure and decision criteria. Computer use required.

IE 682 Compiler Design

Prerequisites: IE 608 and IE 648. Study of the function, structure, and design of language translators, including assemblers, macroprocessors, compilers and interpreters. Topics include lexical and syntax analysis, symbol tables, memory management, relocation, linking, loading, error handling, fundamentals of code optimization and generation. Computer use fee required.

IE 683 Systems Analysis

Prerequisites: IE 601 or QA 605, IE 614. Techniques and philosphies defining the concept of systems analysis presented in detail; illustrated with large scale case studies. Diverse systems are analyzed covering the social, urban, industrial and military spheres. Techniques presented include utility theory, decision analysis and technological forecasting.

IE 684 Operating Systems

Prerequisites: IE 608 and IE 648. Recommended is IE 622. Study of the function, structure and design of computer operating systems, principally multiprogramming systems. Topics include management of processes and processor resources, of data and memory, and of peripheral devices; concurrent processes, system protection, scheduling, paging and virtual systems.

IE 685 Theory of Optimization

Prerequisites: calculus, IE 603F or equivalent. Nonlinear and dynamic programming with special reference to computer analysis of optimization problems.

IE 686 Inventory Analysis

Prerequisites: IE 601, IE 607 or QA 605. Inventory theory and practical applications in operating inventory systems. Model construction, optimization and computer simulation.

IE 687 Stochastic Processes

Prerequisite: IE 622. The theory and application of discrete and continuous time stochastic processes. Areas of application include queueing, inventory, maintenance and probalistic dynamic programming models.

IE 688 Design of Experiments

Prerequisite: IE 609 or equivalent. Principles of modern statistical experimentation and practice in use of basic designs for scientific and industrial experiments; single factor experiments, randomized blocks, latin squares; factorial and fractional factorial experiments; surface fitting designs.

IE 690 Project

Prerequisites: 15 credit hours and permission of the program coordinator. Independent study under the guidance of an adviser into an area of mutual interest, such study terminating in a technical report of academic merit. Research may constitute a survey of a technical area in industrial engineering, operations research or computer science, or may involve the solution of an actual or hypothetical technical problem.

IE 691 Project

For description see IE 690.

COURSES

IE 695 Independent Study I
Prerequisite: permission of the program coordinator. Independent study under the guidance of an adviser into an area designated by the program coordinator.

IE 696 Independent Study II
A continuation of Independent Study I.

IE 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

IE 699 Thesis II
A continuation of Thesis I.

Business Law

LA 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

LA 673 Business Law I: Contracts and Sales
A study of the legal aspects of contracts and the results of contractual obligations. Legal problems stemming from the sale of goods, including the rights and duties of buyers and sellers and the remedies available to them.

LA 674 Business Law II: Business Organizations and Negotiable Instruments
Prerequisite: LA 673. Introduction to problems of formation and operation of legal groups with particular emphasis on the law of agencies, partnerships and corporations. Course coverage also will include the law of negotiable instruments.

LA 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

LA 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

LA 696 Independent Study II
A continuation of Independent Study I.

LA 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

LA 699 Thesis II
A continuation of Thesis I.

Logistics

LG 660 Logistics Technology and Management
Designed to provide to the student a broad survey of the wide range of logistics activities. Subjects covered: the concepts of the integrated logistics management system, customer interfaces, inventory management and support of spares and supplies, physical distribution management as well as the logistical organization, planning and administration. Course content includes the quantitative analytical techniques and computational tools commonly used in the logistical decision-making process.

LG 663 Logistics Management in the System Acquisition Process
Designed to provide students a general knowledge of the management process for the acquisition of equipment and material. Subject topics are: test and evaluations, specifications as a procurement instrument, procurement methods, type of contracts and management system interfaces.

LG 665 Integrated Logistics Support Analysis
Designed to provide students an opportunity to understand the concept of Integrated Logistics Support (ILS) and an overview of each of the elements of logistics specialties, their interface and interaction, as well as the integration of the separate logistics specialties into a coherent effort and output. Topics covered in this course are reliability, maintainability, life cycle cost, ILS management and major ILS decisions involved, test and support equipment, personnel and training warranties, etc.

LG 669 Life Cycle Cost Analysis
A study of Life Cycle Cost Analysis (LCCA), a new state-of-the-art management tool used in the defense industry to assist and advise decision-makers to identify a preferred choice among all possible alternatives in acquisition of a new equipment and/or system. Topics discussed will be techniques and concepts such as the total cost concept; the fixed cost criterion; the fixed effectiveness criterion and the marginal utility criterion. Management decision making is emphasized.

LG 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

LG 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

LG 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

LG 696 Independent Study II
A continuation of Independent Study I.

LG 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

LG 699 Thesis II
A continuation of Thesis I.

Mathematics

M 610 Fundamentals of Calculus and Linear Algebra
Prerequisite: M 115 or equivalent. Review of algebra. Topics from calculus, including differentiation and integration methods, applied to problems in science, business and the social sciences. Linear algebra, systems of linear equations and matrix methods.

M 620 Numerical Analysis
Prerequisite: A minimum of 12 credit hours of undergraduate mathematics, including calculus and linear algebra; programming facility with a computer language such as FORTRAN or Pascal or BASIC. Topics include: solution of transcendental equations by iterative methods; solution of systems of linear equations (matrix inversion, etc.); interpolation, numerical differentiation and integration; solution of ordinary differential equations. Laboratory fee required.

M 624 Applied Mathematics
Prerequisites: A minimum of 12 credit hours of undergraduate mathematics, including calculus and differential equations. Special functions; Fourier series and integrals; integral transforms (Fourier, Laplaace, etc.) and their use in solution of boundary value problems.

M 632 Methods of Complex Analysis
Prerequisite: graduate standing in engineering or mathematics. A study of the applications of the methods of complex variables to engineering and physical sciences. Topics include analytic function theory, contour integration and conformal mapping.

M 670 Special Topics in Mathematics
Prerequisite: permission of the instructor. A study of selected topics of particular interest to students and instructor. Course may be taken more than once.

M 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

M 695 Independent Study I
A planned program of individual study under the supervision of a member of faculty.

M 696 Independent Study II
A continuation of Independent Study I.

M 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

M 699 Thesis II
A continuation of Thesis I.

Mechanical Engineering

ME 602 Mechanical Engineering Analysis I
Topics in complex variables, evaluation of integrals via residue theorem, special functions, solution of partial differential equations by separation of variables and integral transform methods, Green's function.

ME 604 Mechanical Engineering Analysis II
Prerequisite: Knowledge of FORTRAN. Review of matrix algebra and simultaneous equations. Numerical integration and differentiation, including techniques such as Euler, Runge-Kutta, Milne, shooting, Crank-Nicolson and FEM. Emphasis on numerical solutions to ordinary and partial differential equations relevant to Mechanical Engineering.

ME 605 Finite Element Methods in Engineering
Prerequisite: ME 604 or M 620. Basic concepts underlying the FEM. Displacement and weighted residual formulations of the finite element approach to numerical solutions. Applications to one- and two-dimensional problems in areas such as elasticity, heat transfer and fluid mechanics.

ME 610 Advanced Dynamics
Kinematics and dynamics of single particles and systems of particles. Lagrange's equations. Hamilton's principles and canonical transformation theory. The inertia tensor and rigid body motion.

ME 611 System Vibrations
Advanced techniques for analysis of vibrations in mechanical systems. Multiple degrees of freedom, random noise inputs among topics.

COURSES

ME 613 Fundamentals of Acoustics
Basic acoustic theory in stationary media; plane, cylindrical and spherical waves; reflection, transmission and absorption characteristics; sources of sound; propagation and attenuation in ducts and enclosures.

ME 615 Theory of Elasticity
Index notation, Cartesian tensors and coordinate transformation, stress tensor and field equation, analysis of stress and strain in two and three dimensions, Airy stress function, applications to problems of torsion and bending, experimental methods.

ME 620 Classical Thermodynamics
Phenomenological equilibrium and nonequilibrium thermodynamics. Formulation and application of fundamental laws and concepts, chemical thermodynamics.

ME 622 Statistical Mechanics
Development of the molecular theory of matter; classical and quantum statistical results of equilibrium and kinetic properties of solids, liquids and gases.

ME 625 Mechanics of Continua
Tensor analysis, the stress vector and the stress tensor, kinematics of deformation, material derivative, fundamental laws of continuum mechanics, conservation theorems, constitutive laws and representative applications.

ME 628 Modern Materials
Survey of the forefront of current engineering materials and processing techniques. Representative topics might include composites, superalloys, laser fabrication and continuous casting techniques.

ME 630 Advanced Fluid Mechanics
Advanced topics chosen from among the following areas: perfect fluids, viscous fluids, turbulence, boundary layer theory, surface phenomena, shock waves and gas dynamics.

ME 632 Advanced Heat Transfer
Review of the basic concepts of conduction and radiation. Detailed treatment of laminar, turbulent, free and forced convectional flows. Computational projects.

ME 635 Dynamic Systems and Controls
Introduction to the modeling of dynamic systems. Emphasis on the analysis of first and higher order continuous-time linear models. Feedback techniques with examples from various branches of mechanical engineering. Laboratory fee required. 4 credit hours.

ME 638 Measurement and Instrumentation in Mechanical Engineering
Measurement principles, including error analysis. Instrument systems: sensing, transmitting and terminating devices. Typical systems and devices for measuring motion, force, stress, strain, pressure, flow and temperature.

ME 645 Computational Fluid Dynamics and Heat Transfer
Prerequisite: ME 630, and ME 604 or M 620. Current methods of computer solutions of the conservation equations of fluid dynamics. Viscous, incompressible, compressible and shock flows. Real gas equations of state. Computer projects.

ME 670 Special Topics—Mechanical Engineering
Prerequisite: permission of the instructor. A study of selected topics of particular interest to students and instructor. Course may be taken more than once.

ME 695 Independent Study I
Prerequisite: permission of program coordinator. Independent study under the guidance of an adviser into an area designated by the program coordinator.

ME 696 Independent Study II
A continuation of Independent Study I.

ME 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

ME 699 Thesis II
A continuation of Thesis I.

Management

MG 625 Systems Techniques in Business Administration
An integrated study of the techniques for solving administrative problems, including the analysis and improvement of organizational structures, office procedures, forms design, records management, reports and equipment standards. The conduct of a comprehensive systems survey using these techniques is explored in depth as are flow charting and the preparation of manuals.

MG 635 Purchasing and Materials Management

This course deals with the management of materials and the procurement function in a business enterprise. The fundamental auxiliary functions and management of materials activities provide introduction to an increasingly specialized field of business administration.

MG 637 Management

A study of the functions of management planning, organizing, directing, controlling, coordinating.

MG 638 Cost Benefit Management

Prerequisites: QA 604, EC 603. An introduction and overview to the field of cost/benefit management. Fundamental theoretical evaluation of cost/benefit of a project will be covered. Other topics discussed include: the selection of the best investment criteria, the external environmental spillover effects and the application of cost/benefit management in decision making under uncertainty.

MG 640 Management of Health Care Organizations

Identification of the characteristics of health care organizations and the dimensions of management in such organizations. Examination and application of the principles of management necessary for the successful operations of health care organizations. M.B.A. students in the health care concentration take MG640 in place of MG637 in the core.

MG 641 Contract Administration

Prerequisite: QA 600 or equivalent. The administrative aspect of the contract, modification, evaluation and sub-contracting. Importance is given to value analysis as it effects government property and affects by action of the contractor and the government. Other issues are covered such as financial and pattern rights.

MG 645 Management of Human Resources

A study of organizational practices in the management of human resources. Manpower planning, recruitment, selection, training, compensation and contemporary problems of the field.

MG 650 Venture Management

Prerequisites: A 621, FI 615, MG 637, MK 609, or permission of the instructor. Deals with the establishment of a new business venture, covering such topics as site development, market analysis, staffing, inventory control, personnel relations and funding.

MG 660 Comparative Management

Prerequisite: MG 637. A study and comparison of managerial systems and practices in different organizations and/or countries throughout the world. A conceptual framework is developed to analyze the interaction between managerial processes and cultural factors as they affect business activity.

MG 661 Development of Management Thought

Prerequisite: MG 637. Study of the literature from various disciplines in order to determine the thinking and practices of leaders of organizations, past and present. The historical perspective of management thought will be developed. The contributions of religion, philosophy, economics, sociology and psychology to management thought and practice will be examined. Emphasis on pioneering works in the management of organizations. Case studies of the thinking and practices of famous leaders of American business enterprises.

MG 662 Organization Theory

Prerequisite: MG 637. A survey of the literature on theories of organization with emphasis on contemporary theories. Application of the theories to management and organizational problems will be attempted. Difficulties arising between theory and practice will be examined.

MG 663 Leadership in Organizations

Prerequisite: MG 637. Examination of theories and research findings from the behavioral sciences that are relevant to leadership in organizations. The role of the leader within the organization; the prerequisites, knowledge and practices required for successful leadership. Programs for the development of leaders will be explored.

COURSES

MG 664 Organizational Effectiveness
Prerequisite: MG 637. Identification of the criteria necessary for developing and maintaining effective organizations. A study of the concepts that may be utilized in the management of these criteria. Approaches that may be examined and applied to problem situations through cases and role playing.

MG 665 Compensation Administration
Prerequisites: MG 645 and EC 635. A study of the compensation function in organizations. Establishing wages and salaries, fringe benefits and incentives.

MG 669 Business Policy and Strategy
Prerequisites: MG 637 and 3 credit hours of 600-level MG course work. Examination of management policies and strategies for the complex organization operating in a dynamic environment, from the viewpoint of the top-level executives of the organization. Develops analytical frameworks for the management of numerous elements involved in assuring the fulfillment of the goals of the total organization. Integrates the student's general business knowledge with the required courses in the M.B.A. program. Emphasis is placed on the development of oral and written skills by the examination and discussion of cases.

MG 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

MG 675 Readings in Management
A seminar. Examines the literature in selected areas of management.

MG 678 Personnel Management Seminar
Prerequisites: MG 637, MG 645, P 619 & EC 625. A seminar in the personnel and manpower management function of the modern work organization. The use of an integrated behavioral, quantitative and systems approach permits an applied multidisciplinary synthesis of the various aggregate manpower management subsystems required in the modern work organization.

MG 679 Industrial Relations Seminar
Prerequisites: MG 637, P 619, EC 625 & EC 687. A seminar in industrial relations and the labor-management relations function of the modern work organization. The use of an integrated behavioral, economic and legal approach permits an applied multidisciplinary synthesis of the employee relations function required in either non-unionized or unionized work organizations.

MG 680 Current Topics in Business Administration
Prerequisite: 15 graduate hours or permission of the instructor. An integrative course examining the role of business in society and relating the business firm to its social, political, legal and economic environment. While the exact content of this seminar is expected to vary from semester to semester in accordance with the varied academic interests and professional backgrounds of different faculty handling the course, the basic theme is the role of the business firm as the "keeper" of the market mechanism and the means for organizing resources in the economy.

MG 685 Research Methods in Business Administration
Prerequisite: QA 604 or equivalent. Designed to familiarize administrators of social research and to assist them in the presentation, interpretation and application of research data.

MG 690 Research Project
Prerequisite: 15 graduate hours or permission of the instructor. Independent study under the supervision of an adviser.

MG 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

MG 696 Independent Study II
A continuation of Independent Study I.

MG 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

MG 699 Thesis II
A continuation of Thesis I.

Marketing

MK 609 Marketing
Prerequisites: EC 603. An intensive study of modern marketing fundamentals, a study of the decision-making problems encountered by the marketing executive and the relation of marketing to environmental forces.

MK 616 Buyer Behavior
Prerequisite: MK 609. An examination of the principal comprehensive household and organizational buyer behavior models and the behavioral science theories upon which such applied models are based. The buyer is analyzed at the individual level, at the social level and at the organizational level.

MK 639 Marketing Research and Information Systems
Prerequisites: MK 609, QA 605. A managerial approach to marketing information flow, including recognition of information needs and an overview of marketing research as part of an information system. Special attention to evaluation of research design and measurement methods, effective utilization of research output and problems encountered in establishing a marketing information system.

MK 641 Marketing Management
Prerequisite: MK 609. The treatment of the basic decision problems of marketing management in terms of a conceptual framework for analysis. Consideration of the role played by human judgments and the mathematical tools available to aid in these judgements in a number of marketing areas, notably market analysis, pricing decisions, advertising decisions, promotional decisions and selection of distribution channels.

MK 643 Product Management
Prerequisite: MK 609. The search for new product ideas and their evaluation; the organization structure necessary to the development and introduction of new products and the management of a product line; the commercial aspects of product design, packaging, labeling and branding; considerations involved in making product deletion decisions; and the social and economic effects of managing product innovation.

MK 644 Consumerism
Prerequisite: MK 609. An analysis of the evolution of the consumerist movement; how and why it has developed; government agencies dealing with consumer problems; the impact of various market structures on the consumer; the impact of consumer-oriented legislation on marketing strategies; and the responsibility of business to the consumer and to society.

MK 645 Distribution Strategy
Prerequisite: MK 609. Analysis of channel strategies; theory and economic justification of distribution channels; direct and indirect methods of control; behavioral states of channel members; costing the channel; and management of changes in distribution.

MK 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

MK 680 Marketing Workshop
Centers around a structural model of a business firm. The major objective is to provide the student with an opportunity to develop managerial insights and skills in dealing with marketing problems in a competitive environment. Each of the participants is grouped into decision-making units (companies) and assumes the role of a marketing executive operating a business firm. These executives will be responsible for planning, organizing, staffing, directing and controlling their firm's resources.

MK 690 Research Project
Prerequisite: 15 graduate hours and permission of the instructor. Independent study under the supervision of an adviser.

MK 692 Readings in Marketing

MK 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

MK 696 Independent Study II
A continuation of Independent Study I.

MK 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

MK 699 Thesis II
A continuation of Thesis I.

COURSES

Psychology

P 605 Survey of Community Psychology
An examination of historical roots and current concepts. A social-problems approach to psychological dysfunction. Changing professional roles. Community organization and human service delivery; strategies of intervention and community change.

P 607 Special Problems in Community Psychology
Theory and practice of community psychology with selected problems, populations and settings. Emphasis on community psychology service issues and problems in the Connecticut area.

P 609 Research Methods
Prerequisite: Undergraduate course in statistical methods. Introduction to analytic concepts pertinent to sampling techniques, research design, variable control and criterion definition. Basic problems of measurement, research paradigms, sources of error in research interpretation, problems of variable identification and control and consideration of the logic of inference.

P 610 Program Evaluation
Prerequisite: P 609. A systematic study of the processes involved in planning, implementing and evaluating organizational programs, The focus is on action research strategies which integrate the entire process from planning to the evaluation of the program.

Practicum Seminars and Field Work:

An apprenticeship or on-the-job role in an ongoing program or center. Emphasis on developing conceptualizations and insights as a result of involvement in the apprenticeship. Placement at a field site for 8 to 10 hours per week. Weekly class meetings serve two purposes: to present specific theoretical material and research findings appropriate to each seminar and to allow students to discuss their field training experiences.

P 611 Individual Intervention Seminar
An examination of strategies for providing direct helping services to individuals in the context of formal and informal networks of social and community support. Topics include the nature of the dyadic relationship, development of therapeutic and case management skills, professional ethics, and supervision. Applications to a wide range of problems, populations, and settings.

P 612 Consultation Seminar
An examination of the consultation process. Topics include the role of the consultant, stages of consultation, the development of consulting skills and political/ethical issues. Different approaches to consultation practice are analyzed, along with their associated interventions.

P 613 Systems Intervention Seminar
An examination of the dynamics of planned, systems-level change in the field of human services. The distinctive characteristics of human service organizations are analyzed, and an overall intervention model is developed, applied and discussed. Of special interest to those with responsibilities in program planning and implementation.

P 614 Individual Intervention Field Work
Supervised field training in the provision of direct services to individual clients. Supervision is jointly provided by the field setting and the psychology department. Students must be available for at least one day per week. (Permission of instructor is required).

P 615 Consultation Field Work
Supervised field training in the development of consultation skills. Supervision is jointly provided by the field setting and the psychology department. Students must be available for at least one day per week. (Permission of instructor is required).

P 616 Systems Intervention Field Work
Supervised field training in program planning and development. Supervision is jointly provided by the field setting and the psychology department. Students must be available for at least one day per week. (Permission of instructor is required).

P 619 Organizational Behavior
Analysis of various theories of business and managerial behavior emphasizing the business organization and its internal processes. Psychological factors in business and industry, including motivation, incentives and conflict. A study of research findings relevant to an understanding and prediction of human behavior in organization.

P 620 Industrial Psychology
Psychological theories and research applied to business and other organizations. Problems and methods in selection and placement, training, performance appraisal, criterion development and ergonomics.

P 621 Behavior Modification
Theory and research in behavior modification. Aversive learning, desensitization, operant conditioning. Applications in clinical and non-clinical settings.

P 623 Psychology of the Small Group
Analyses of the behavior and interaction of people in mutual gratification groups, committees, work groups and clubs.

P 625 Life Span Developmental Psychology
In-depth exploration of normal and abnormal development through the life cycle. Emphasis on childhood, adolescence, adulthood, and later years. Developmental impact of family, neighborhood, schooling, work, culture. Issues of class, ethnicity, gender, age, etc. Applications of theory and research to community treatment and prevention.

P 627 Attitude and Opinion Measurement
Prerequisite: P 609. Examination of modern methods of attitude and opinion measurement. Scale, schedule, and interview formats. Respondent sets. Consideration of sampling problems.

P 628 The Interview
The interview as a tool for information gathering, diagnoses, mutual decision making and behavior change. Use of role playing provides the student with insights into nuances of interpersonal relationships. Applications to selection, counseling and other situations.

P 629 Introduction to Psychotherapy and Counseling
Theory, research and practice of psychotherapy and counseling. Examination of the assumptions, roles and processes of the therapeutic relationship.

P 630 Psychology of Personality
Major personality theories and their implications. Examination of the psychological and organic factors involved in personality development and expression.

P 631 Social Psychology
Current problems in social psychology. Attitude scale construction, attitude change, language as a social phenomenon, patterns of culture, social class, groups, person perception and conformity.

P 632 Group Dynamics and Group Treatment
An exploration of the emerging area of group dynamics. The structure of groups, their development, process interaction analysis, formal and informal groups, group psychotherapy and sensitivity training.

P 633 Problems of Drug Abuse
Discussion of selected issues and current problems in drug abuse.

P 634 Personality Assessment
A critical survey of the theories and issues of personality assessment. Topics include intelligence, achievement and ability assessment. Personality tests and ethical questions associated with psychological testing.

P 635 Assessment of Human Performance with Standardized Tests
Prerequisite: P 609. Theories, assumptions and constraints underlying construction and application of standardized tests employed in clinical, educational, governmental and industrial settings. Emphasis on selection of appropriate standardized tests for specific applications.

P 636 Abnormal Psychology
Etiological factors in psychopathology dynamics and classification of neuroses, psychophysiologic conditions, psychoses, personality disorders, organic illness, retardation and childhood diseases.

P 638 Psychology of Communication and Opinion Change
Characteristics of the source, the situation and content of messages, along with other variables influencing attitudinal modification. Cognitive factors and social settings in attitude change.

P 640 Industrial Motivation and Morale
Prerequisite: P 619. The meaning of work; theories of motivation; values and expectations; performance and reinforcement; job satisfaction and motivation; pay as an incentive; interventions to increase work motivation.

COURSES

P 641 Personnel Development and Training
Prerequisite: P 619 or P 620. Identification of skills and developmental needs, both from an organizational and individual perspective. Techniques for assessment and development of skills, especially at the managerial level. Training approaches. Evaluation of training efforts.

P 642 Organizational Change and Development
Prerequisite: P 619. The nature of organization development, intervention by third-party consultation, change in organization structure and role relationships, evaluation of change efforts, participation, conformity and deviation.

P 645 Seminar in Industrial/ Organizational Psychology
Prerequisites: P 609 and P 619. An examination of the professional psychologist at work in organizations. Regular subjects include: measurement methods, prediction, validation, selection, training and employee assistance programs, group dynamics, organizational change, stress performance appraisal; practitioners in business, industry, research organizations and government will provide insights into the application of psychological principles and methods.

P 650 Ecological Psychology
An in-depth study of the relationship between molar human behavior and the sociophysical settings in which it occurs. Human behaviors are conceptualized as adaptive responses to environmental and organizational systems that provide their contexts. Particular emphasis will be placed on the ecological match between organizations and their members.

P 660 Contemporary Issues in Industrial/Organizational Psychology
Prerequisite: 12 hours in psychology or consent of the instructor. In-depth investigation of topical areas of concern in industrial/ organizational psychology. Topics may include, but are not limited to, the impact of EEOC regulations on selection and promotion; assessment centers; the role of the consultant in organizations; flextime, day care and other strategies to accommodate family needs of employees; stress in work settings; women in management. Content will be stated at the time the course is scheduled. Students may petition for a particular topic they feel would fit their academic goals. May be taken twice.

P 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

P 672 Psychology of the Middle and Later Years
A comprehensive consideration of the psychological aspects of the aging process. Sensation, perception, cognition, intelligence, problem solving, memory and sexuality, personality changes. Disengagement, rigidity. Death and its anticipation.

P 678 Practicum I
For students already employed in a managerial or supervisory role. A job-related research project is carried out under faculty supervision.

P 679 Practicum II
Prerequisite: P 678.

P 693 Organizational Internship I
For students without experience at the managerial or supervisory level. Under faculty supervision, the student engages in field experience in an industrial setting.

P 694 Organizational Internship II
Prerequisite: P 693.

P 695 Individual Intensive Study I
Prerequisite: completion of required courses or 24 graduate hours and written approval of department chairman. Provides the graduate student with the opportunity to delve more deeply into a particular area of study under faculty supervision.

P 696 Individual Intensive Study II
Prerequisite: P 695.

P 698 Thesis I
Prerequisite: completion of all required courses or 24 graduate hours and written approval of department chairman. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

P 699 Thesis II
Written approval of departmental chairman. A continuation of Thesis I.

Public Administration

PA 601 Principles of Public Administration
The development, organization, functions and problems of national, state and local governmental administration.

PA 602 Public Policy Formulation and Implementation

The relationship between public administration and the formulation of public policy is studied. The implementation of public policy by administrators based on the politics of the administrator is examined in terms of interaction between various group representatives, i.e., the legislators, the politician, and pressure group leaders.

PA 604 Communities and Social Change

Interactions among the community as a social organization and education, police and welfare institutions within it; special attention to conceptual frameworks and current research or action programs that particularly affect minority groups.

PA 611 Research Methods in Public Administration

Designed to familiarize administrators with the tools and potentialities of social research, and to assist them in the presentation, interpretation and application of research data.

PA 620 Personnel Administration and Collective Bargaining in the Public Sector

Study of the civil service systems in the United States and the state governments, including a systematic review of the methods of recruitment, promotion, discipline, control and removal. Explores the effects on work relationships of collective bargaining statutes which have been adopted by legislatures. Emphasis is placed on collective bargaining case studies from state and local governments and hospitals.

PA 625 Administrative Behavior

Recommended prerequisite: PA 601. The problems faced by an administrator in dealing with interpersonal relationships and human processes. Analysis of individual and group behavior in various governmental and business settings to determine the administrative action for the promotion of desired work performance. Emphasis given to the public sector. Participation in actual problem situation discussions and case studies.

PA 630 Governmental Accounting

Recommended prerequisite: PA 601. The problems faced by a survey of the essential principles of governmental accounting, budgeting, cost accounting and financial reporting. The various operating funds, bonded debt, fixed assets, investments, classification of revenue and expenditures, general property taxes and interfund relationships.

PA 632 Public Finance and Budgeting

Recommended prerequisites: PA 601, EC 608, PA 604. State and local expenditure patterns, state and local revenue sources, income taxation at the state and local level, excise taxation, sales taxation, taxation of capital and the property tax. Emphasis on fiscal and economic aspects of federalism and federal-state fiscal coordination. The role of the budget in the determination of policy, in administrative integration, in control of government operations.

PA 634 Problems of Municipal Management

Study of selected problems of city management with emphasis on "housekeeping" and line operations.

PA 635 Statistics for Public Administrators

Provides a basic theoretical treatment of the nature of statistical analysis and its role in economic research design and procedure.

PA 641 Financial Management of Health Care Organizations

Theory and application of financial planning and management techniques in health care organizations. Emphasis is on financial decision making, preparation of short-term and long-term cash, capital and revenue and expense budgets and financial plans to meet the requirements of HCFA and other third parties.

PA 642 Health Care Delivery Systems

A contemporary analysis of health care delivery systems in the U.S. Financial, cost, economic, political and organizational issues will be discussed.

PA 643 Health and Institutional Planning

Designed to develop skills and understanding of the dynamics of health and social planning processes with respect to consumer demand, national and local health goals and the optional location of facilities, services and manpower.

PA 644 Administration of Programs and Services for the Aged

The structure, function and properties of publicly and privately funded programs and service organizations providing health services to the aged. The economic, political, legal and social issues which affect the administration of human service organizations will be studied, with emphasis on administration of health care services.

COURSES

PA 645 Health Care Economics and Finance
Recommended prerequisite: PA 641. Integration of accounting, economics, finance, budgeting and heath insurance principles, concepts and analytical tools which are essential to the decision-making processes of health care organizations.

PA 646 Organization and Management of Long-Term Care Facilities
This course examines the variety of systems providing long term care services for the aged. Special concentration is placed on the ways various facilities are managed and interact with the state by-laws. Case studies are used to illustrate decision-making and problem-solving within health institutions.

PA 650 Administrative Law
A search for principles and criteria against which public interest can be balanced with private right in the changing patterns of government, with particular reference to the American system.

PA 660 Urban Planning: Theory and Practice
Explores the concept of physical planning within the urban developmental framework. The function of planning in its relationship to the environment. Comprehensive planning with its many ramifications involving the various sections of our society. Methods for analyzing problems as well as design methods for problem solving.

PA 661 Problems of Metropolitan Areas
Analysis of the problems of government and administration arising from the population patterns and physical and social structures of contemporary metropolitan communities.

PA 663 Urban Housing
Encompasses the subjects of housing management, planning, finance and policy. Specific topics such as the provision of low-income housing, the use of mortgage insurance, interest subsidies, site planning, rent controls, code enforcement, mortgage markets and the rise of housing abandonment are stressed.

PA 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

PA 671 Administrative Problems
Exploration of the practical experiences and problem-solving situations in the day-to-day activities of a public administrator.

PA 680 Seminar in Public Administration
Exact material to be covered will be announced.

PA 690 Research Seminar
A core course required of all students. Students will undertake a major independent research study and participate in an integrative seminar on research and its uses in public administration.

PA 691 Research Project
Prerequisites: 15 graduate hours, permission of the public administration graduate program coordinator. Independent study for advanced graduate students on selected problems in public administration. May be taken more than once.

PA 692 Readings in Public Administration
Prerequisite: 15 graduate hours or permission of the instructor.

PA 693 Public Administration Internship
Prerequisites: 15 graduate hours, permission of the public administration graduate program coordinator. A supervised work experience in a cooperating public service agency. Students must be available for at least one day per week.

PA 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

PA 696 Independent Study II
A continuation of Independent Study I.

PA 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

PA 699 Thesis II
A continuation of Thesis I.

Physics

PH 680 Special Topics—Physics
Prerequisite: permission of the instructor. A study of selected topics of particular interest to students and instructor. Course may be taken more than once.

Philosophy

PL 601 Business Ethics
Problems include the nature of the corporation, the values of business activity, corporate social responsibility, the proper relationship between the corporation and government, employee rights, and related matters. Problems are analyzed using the most important current theories of social and economic justice.

Political Science

PS 601 Constitutional Law
A study of the relation of the judicial process and constitutional law to the political process in the United States. Judicial review, federalism and separation of powers.

PS 602 Civil Liberties and Rights
An analysis of civil liberties, civil rights, due process and equal protection of the law. An examination of the role of the public official in the protection, denial or abridgement of the constitutional and legal rights of individuals.

PS 603 International Law
A study of the role of international law in the modern state system with particular reference to individuals; territorial jurisdiction; law of the sea, air and space; and the development of law through international organizations.

PS 604 Human Rights and the Law
An examination of the development of the international and national laws establishing human rights, the laws of war, war/criminality, crimes against humanity and the application of the universal declaration of human rights of the Helsinki accords, and the concept of the individual as the basis of law.

PS 605 Criminal Law
Scope, purpose, definition and classification of criminal law. Offense against the person; habitation and occupancy. Offenses against property and other offenses. Special defenses. Emphasis on the Connecticut penal code.

PS 608 The Legislative Process
An analysis of the legislative process in the American political system. Stress will be placed on legislative politics in state and local government. Among areas covered will be legislative functions, selection and recruitment of legislative candidates, legislative role orientations, the legislative socialization process, the committee system, the legislators and their constituencies, legislative lobbyists, legislative decision making, legislative-executive relations and legislative organization and procedures.

PS 610 Legal Methods I
A study of procedure and process of the law as it applies in the American system and an introduction to legal research and writing.

PS 612 Contracts, Torts and the Practice of Law
An introduction to the most important components of private law, that is, contracts, torts and civil procedure and their application to business, government and individuals.

PS 613 Political Justice
An exploration of the relationship between legal issues and the political environment in history, including an examination of notable political trials, legislative investigations and regulatory decisions.

PS 615 Jurisprudence
The general philosophical framework for all the law courses in the legal studies program. The course will include the background and development of the common law, sources of the law and the court system. Special problems in Anglo-American jurisprudence are reviewed.

PS 616 Urban Government
An examination of the urban political system. Stress will be placed on the political aspects of urban government structures. Among the areas covered will be formal and informal decision making in urban government, community power structures, types of urban government structures, the politics of inter-governmental relations and the politics of servicing the urban environment (social services, planning agencies, education, housing, transportation, health, pollution control and ecology, revenue sharing, public safety, neighborhood corporations, etc.).

PS 617 Law, Science and Ethics
The intersection of law, science and ethics in a variety of contexts, including experimentation with human subjects, psycho-surgery, genetic engineering, organ transplants, abortion and the right to die.

PS 625 Transnational Legal Structures
An introduction to the basic structure of legal systems in other countries, their relationship to Anglo-American law and their contextual development. Special topics include: legal status of foreign and multinational corporations, rights and responsibilities of aliens, protections for investors, expropriation and procedural due process.

COURSES

PS 626 Decision Making in the Political Process
An in-depth study of decision making in the American system with special emphasis upon the various types of mechanisms, i.e., executive, legislative, judicial, bureaucratic, organizational and military. The influence of intelligence, economic and psychological factors and social pressures upon decisions and decision makers will be examined.

PS 628 Change and Government
A study of the major processes of change and their consequences for the functioning of government. The course will concentrate upon changes that may occur through violence, evolution or technology, and which may alter the effective operation of government.

PS 633 The Political Process and the Aged
A study of the political process as it relates to the aged. Governmental decision making on federal, state and local levels including legislation and its implications.

PS 635 Law and Public Health
A course for the civil servant or health professional concerned with the laws relating to the public health at the federal, state and local level as well as the practical administration of those laws.

PS 641 The Politics of the World Economy
An examination of the global politico-economic system and the challenges facing world diplomacy. Multinational corporations and political structures designed to coordinate global policies for the monetary and trade systems, international organizations and their impact on third world development, and problems facing industrialized nations will be analyzed.

PS 645 Government and the Industrial Sector
The various impacts of government regulation on the corporate sector and the major legal and regulatory requirements affecting business and industry.

PS 652 Legal Administration
Examination of the structure and process of legal administration in the United States and the types of issues arising within it. It includes a discussion of the relationship among social, economic and political factors and their effects on administration of law and public policy in contemporary issue areas.

PS 655 Conflict Resolution
Essential features and methods available within the legal system to resolve disputes, including the uses of law, equity, administrative agencies, bureaucracies, arbitration, mediation, special commission and private self-help. Consideration will be given to the applicability of those methods to various types of disputes and will touch upon the choice of law in instances when no single rule may govern in a federal system.

PS 670 Special Topics
A study of items of special interest may include: First Amendment problems, energy and the law, law and the environment, labor legislation and the law, law and commercial paper and stock issues. May be taken more than once.

PS 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

PS 696 Independent Study II
A continuation of Independent Study I.

PS 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

PS 699 Thesis II
A continuation of Thesis I.

Quantitative Analysis

QA 600 Quantitative Analysis
Basic mathematics for solving economic and business problems. Topics include algebra review, equations and inequalities, graphs, exponential and logarithmic functions, an introduction to matrix algebra. No credit.

QA 604 Probability and Statistics
Prerequisite: QA 600 or equivalent. An introduction to business statistics. Topics include data analysis and presentation, frequency distributions, probability theory, probability distributions, decision making under uncertainty, sampling and statistical inference, hypothesis testing, t, chi-square and F tests.

QA 605 Advanced Statistics
Prerequisite: "B" or better grade for QA 604 or equivalent. A continuation of QA 604. Topics include simple regression and correlation, multiple regression, analysis of variance, the general linear model and an introduction to time series analysis and forecasting techniques.

QA 606 Advanced Management Science

Prerequisites: IE 601, QA 604-605. An examination, from a management viewpoint, of the scope of applicability of the methods and models developed in IE 601, Introduction to Operations Research/ Management Science, and QA 604-605, Probability and Statistics, and Advanced Statistics. Topics include parametric programming and economic interpretation of the dual LP problem, marginal costs and revenues, shadow prices, opportunity costs, incremental costs, costs of deviation from optimal solution point(s), and location or construction of desirable alternate optimal solutions.

QA 607 Forecasting

Prerequisite: QA 605 or permission of the instructor. This course will present a wide range of forecasting methods useful to students and practitioners of management, economics and other disciplines requiring forecasting. The course will focus on quantitative techniques of forecasting and will include: smoothing and decomposition approaches, multiple regression and econometric models, and autoregressive/moving average methods including generalized adaptive filtering and Box-Jenkins methodology.

QA 670 Selected Topics

A study of selected issues of particular interest to the students and instructor. Courses may cover Decision Science methods such as experimental design, non-parametrics, data analysis with SPSS, Bayesian decision theory and simulation. May be taken more than once.

QA 690 Research Project

Prerequisite: 15 graduate hours or permission of the instructor. Independent study under supervision of an adviser.

QA 695 Independent Study I

A planned program of individual study under the supervision of a member of the faculty.

QA 696 Independent Study II

Prerequisite: QA 695.

QA 698 Thesis I

Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

QA 699 Thesis II

Prerequisite: QA 698. A continuation of QA 698, Thesis I.

Science

SC 601 Introduction to Ecology

An introduction to the biological aspects of environmental problems. Includes discussion of the concepts of bioecology, organisms (micro-organisms, plants, animals) important in pollution control and detection and human organ systems most affected by pollution.

SC 602 Pollutants and the Aquatic Environment

Prerequisite: SC 601. Discusses the inter-relationships among the various kinds of pollutants, the morphology of the lake, river, or coastal area, and the effects on the individual organism and the ecosystem as a whole. Treatment methods using organisms are also discussed.

SC 603 Air Pollution

Prerequisite: SC 601. An introduction to air movements in the atmosphere and their relation to pollutants; the effect of air pollution upon organisms with special emphasis on the effects on human beings.

SC 608 Water Quality

Prerequisite: SC 601 or undergraduate biology major. Recognition of the organisms and substances of polluted waters; the selection of the appropriate methods for collection, testing and analysis of the data. The functions and interrelations of governmental agencies in controlling water pollution.

SC 610 General Environmental Health

Prerequisite: SC 601 or undergraduate biology major. Principles of public health with general emphasis given to environmental factors such as air and water pollutants, legal standards and preventative measures and their relationships to public health.

SC 612 Freshwater Ecology

Prerequisite: SC 601 or undergraduate bioecology course. Investigation of physical, chemical and biological relationships in lakes, ponds and rivers. Emphasis on factors relating to eutrophication problems and the manner in which ecological studies are conducted.

SC 613 Marine Ecology

Prerequisite: SC 601 or undergraduate bio-ecology course. Investigation of physical, chemical and biological relationships in oceans, coastal waters and estuaries. Emphasis on factors and environments encountered in pollution problems and the manner in which ecological studies are conducted.

COURSES

SC 615 Life Cycle Nutrition
Prerequisites: introductory nutrition, introductory biology, introductory chemistry, or by special permission. A review of the structures, properties, sources and actions of the major nutrients. Discussion of the relationships of the nutrients to various physiological processes. Emphasis on nutritional needs during the various stages of life. Therapeutic nutritional applications presented where applicable.

SC 616 Geriatric and Advanced Nutrition
Prerequisites: SC 615 or strong background in nutrition. Latest concepts of nutrition discussed. Reports from current journals presented. Special emphasis given to nutritional problems of the aged. Preventative and therapeutic nutrition covered.

SC 621 Microbiology
Prerequisites: SC 301, or permission of the instructor. Use of current literature to view the beneficial and deleterious impacts of microorganisms, from viruses to fungi, on the environment. Topics will be diversified and dependent upon student preference.

SC 622 Bacteriology
Prerequisites: SC 301, SC 302, or permission of the instructor. Study of the characteristics basic to classification of bacteria. Group-by-group study of bacteria with emphasis on the major detrimental and beneficial contributions of each group as they affect man and the environment. Students will be expected to survey recent findings in scientific publications.

SC 642 Biology of Aging
A study of mammalian aging including chemical, genetic, cellular, physiological, nutritional and evolutionary aspects.

SC 670 Selected Topics
Prerequisite: 9 graduate hours. A study of selected issues of particular interest to the students and instructor. May be taken more than once.

SC 690 Research Project
Prerequisite: permission of the instructor. Independent study under the supervision of an adviser.

SC 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

SC 696 Independent Study II
A continuation of Independent Study I.

SC 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussions of the individual student's progress in the preparation of a thesis.

SC 699 Thesis II
A continuation of Thesis I.

Occupational Safety and Health Management

SH 602 Safety Organization and Administration
Intensive study of the occupational safety and health field as it currently exists. History and growth of industrial safety. Motivational and psychological aspects of accident prevention. Legal aspects of safety, including worker compensation and state and federal regulations. Engineering needs. Development of voluntary standard systems. Fire prevention, industrial hygiene and future directions.

SH 605 Industrial Safety Engineering
An analysis of the major physical hazards in industrial work and the attendant safety practices employed to eliminate the hazardous condition or minimize the likelihood and extent of injury. This includes the hazards associated with machinery, combustion, electricity, material handling and fire.

SH 608 Industrial Hygiene Practices
Prerequisite: introductory chemistry. Recognition of the magnitude and extent of the health hazards characteristic of industrial work. An evaluation of the danger, the control of the hazard and the protection of the worker.

SH 611 OSH Seminar
The students and OSH faculty will meet once a week throughout the trimester. The student will select a topic directly related to occupational safety and health, conduct a literature search, do a research project and prepare and defend a mini-thesis.

SH 615 Industrial Toxicology
Prerequisite: introductory chemistry. Introduction to environmental and industrial toxicology; toxicologic evaluation; the mode of entry, absorption and distribution of toxicants; the metabolism and excretion of toxic substances; interactions between substances in toxicology; toxicologic data extrapolation; particulates; solvents and metals; agricultural chemicals—insecticides and pesticides; toxicology of plastics; gases; food additives; plant and animal toxins; carcinogens, mutagens and teratogens.

SH 620 Occupational Safety and Health Law
A survey of the major federal Occupational Safety and Health laws with an emphasis on the Occupational Safety and Health Act of 1970 (Public Law No. 91-956) as well as state and federal workman's compensation law. Studies will focus on the administration of the laws, their major provisions, the enforcement process as well as the federal/state interrelationships in this milieu.

SH 630 Product Safety and Liability
An investigation into the legal pitfalls and the human concerns inherent in the marketing and consumption of goods: sellers responsibility, product liability, insurance, labeling requirements. The Consumer Product Safety Act and related acts, the procedures for minimizing legal risk and maximizing human safety and health.

SH 660 Industrial Ventilation
A thorough study of industrial ventilation systems including theory of design, air pollution control, life cycle costs, automatic controls, instrumentation, relevant codes and standards, and the evaluation of system performance.

SH 661 Microcomputers in Occupational Safety and Health
Introductory course for graduate students on using microcomputers in occupational safety and health. Instruction in techniques used for data processing, statistical analysis, interfacing with instrumentation and linking with mini-and main-frame computers.

SH 665 Occupational Safety and Health Measurements
Theory and practice of current methods and techniques applicable to occupational safety and health. Experiments will be conducted in ventilation, non-ionizing radiation, measurement of airborne contaminants, noise, and heat stress. Instruction on statistical analysis of safety data will also be included.

SH 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

SH 690 Research Project I
Prerequisite: permission of the instructor. Independent study under the supervision of an adviser. 1-3 credits.

SH 691 Research Project II
Prerequisite: SH 690. 1-3 credits.

SH 693 OSH Internship I
Coordinated with local industry or governmental agencies such as OSHA, NIOSH and EPA. It involves practical problems in occupational safety or industrial hygiene and approaches to solving these problems under the supervision of a practicing professional. At the end of the project a report will be prepared by the student and be presented to the OSH faculty for grade evaluation. 1-3 credits.

SH 694 Internship II
A continuation of Internship I. 1-3 credits.

SH 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty. 1-3 credits.

SH 696 Independent Study II
A continuation of Independent Study I. 1-3 credits.

SH 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

SH 699 Thesis II
A continuation of Thesis I.

Sociology

SO 601 Minority Group Relations
An interdisciplinary survey of minority groups in the United States with special reference to ethnic, religious and racial factors that influence interaction.

SO 610 Urban Sociology
Prerequisite: PA 604. The problem of urban growth and development. Residential patterns together with the physical development of cities and the redevelopment plans. An examination of the people and their relationships to the environment.

SO 620 Sociology of Bureaucracy
A study of some of the classic conceptualizations of bureaucracy and their relevance to the structure and functioning of American economic and governmental institutions. The course will be designed to give students informational and experiential resources with which they, as planners and managers, can improve their abilities to make effective policy decisions. Strongly recommended for gerontology students.

COURSES

SO 641 Death and Suicide
In-depth analysis of suicide. Traditional theories of suicide are analyzed regarding the psychological approach as well as the demographic and group analysis of sociology. The goal of the course is both academic and practical, stressing community application. Strongly recommended for gerontology students.

SO 649 Seminar in Health and Social Policy
Prerequisite: consent of instructor. Analysis of the legal, political, social, economic and organizational factors in planning and providing health care services with emphasis on policy formulation and implementation. Current health policy issues will be discussed.

SO 651 Social Gerontology
Basic introduction to the field of gerontology. Discusses the history and definition of the field, the contributions of academic disciplines to the field, various perceptions of aging, and explores the basic theories, problems and prospects of gerontology. Required of all gerontology students.

SO 652 Seminar in Gerontology
The seminar will focus on a topic or a series of topics crucial to the analysis of the gerontological phenomenon, and will explore interdisciplinary techniques and findings. Required of all gerontology students.

SO 670 Selected Topics
A study of selected issues of particular interest to the students and instructor. May be taken more than once.

SO 695 Independent Study I
A planned program of individual study under the supervision of a member of the faculty.

SO 696 Independent Study II
A continuation of Independent Study I.

SO 698 Thesis I
Prerequisite: 15 graduate hours. Periodic meetings and discussion of the individual student's progress in the preparation of a thesis.

SO 699 Thesis II
A continuation of Thesis I.

Social Welfare

SW 651 Social Work with the Elderly I: Individuals, Families, Groups
The problems of aging, focusing particularly on the individual and the immediate family. Emphasis will be placed on the role of social work in helping the individual and the family to deal with issues of discrimination, medical and psychological problems, parent-child conflicts, death and dying.

SW 652 Human Services and the Elderly II: Programs, Planning, Policies
An introduction to the variety of private and public social service programs available to the elderly. An attempt will be made to identify gaps and propose alternatives for future programming.

Tourism & Travel Administration

TT 660 Comparative Tourism
A detailed study of tourism development within mainstream destination countries. An in-depth evaluation of selected foreign countries in relationship to tourism, and their political, geographical, agricultural, religious, climatic and socio-economic status.

TT 690 Research in Tourism and Travel Administration
Focus toward the individual student and individual interests that may be applicable to current research in tourism and travel literature. Research must be conducted under the supervision of a faculty member.

TT 695 Independent Study I
A planned program of individual study under the supervision of a faculty member.

TT 696 Independent Study II
A continuation of Independent Study I.

TT 698 Thesis I
Prerequisites: 15 graduate hours completed, and permission of the program adviser. Periodic meetings and discussions of the individual student's progress in the preparation of a graduate thesis.

TT 699 Thesis II
Prerequisite: TT 698. A continuation of Thesis I.

Doctoral Program Course Descriptions

The following course descriptions are tentative and subject to change. Please contact the Graduate School for additional information.

EC 703 Forecasting and Econometrics
Contemporary use of advanced forecasting and econometric techniques in modern corporations and in non-profit organizations. Computerization and data acquisition are described in the context of management planning and decision making.

EC 704 Public and Private Policy Interfaces
Descriptions of the varied and complex interfaces and interdependence between public and private organizations. Roles of regulatory agencies and the resultant responses of regulated organizations.

FI 701 Seminar in Financial Policy
Review of contemporary thought relevant to financial policy formulation within organizations. Analysis of capital markets, regulation and resource availability in the context of contributors to overall corporate policy and strategic decision making.

IE 704 Seminar in Management and Control Systems
Topical coverage of contemporary management information systems and their roles in corporate planning and control functions. Resource control systems are reviewed in conjunction with budgeting, cost accounting, organizational communication and managerial decision making.

MG 701 Research Design I
A comprehensive sequence of materials relevant to the performance of original research, including design of experiments, factor analysis, non-parametric statistics, probability analysis and advanced statistical topics useful in the management science field.

MG 702 Research Design II
A continuation of MG 701 Research Design I.

MG 737 Seminar in Management-Current Topics
Review of the state-of-the-art of the management process. Topical coverage of contemporary management theories, trends, developments, and successes and failures.

MG 738 Policy and Strategic Decision Making
Intensive review of policy formulation and strategic decision making in large and small organizations, with emphasis on private corporations. Interfaces with government, special interest, labor and foreign organizations are incorporated into the overall policy review process.

MK 701 Seminar in Strategic Marketing
Role of marketing and marketing research in the development of organization policy and corporate decision making.

P 719 Seminar in Human Resources
Review of the broad scope of contemporary research in human resources relevant to the management process in organizations of all types. Topics include specific contributions from behavioral science, organization development, industrial relations and group dynamics.

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E. Lucien DeShong, B.A., director, executive M.B.A. program and executive development

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Ronald A. Usiewicz, B.S., M.S., Ph.D., dean
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Sybil J. Merritt, international student admissions secretary
Marie D. Miller, admissions secretary
Phyllis Zagarella, secretary in Danbury

Graduate Records
Virginia D. Klump, registrar for graduate records
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Michaela Apotrias, secretary

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Student Records	Joseph Macionus, B.S., M.P.A., university registrar Nancy A. Carroll, B.S., M.S., associate registrar
Veterans' Affairs	Karen Monteith, B.A., administrative assistant

Faculty 1985-1986

Adams, William, Instructor, Industrial Engineering
B.S.E.E., New Haven College; A.B.D., Wesleyan University

Balba, Hamdy, Practitioner-In-Residence, Chemistry and Chemical Engineering, Ph.D., University of California at Berkeley

Barratt, Carl, Assistant Professor, Mechanical Engineering
B.Sc., Bristol University, England; Ph.D., Cambridge University

Bechir, M. Hamdy, Professor, Civil Engineering
B.C.E., Cairo University; M.A.Sc., University of Toronto; Sc.D., Massachusetts Institute of Technology

Bockley, William R., Associate Professor, Management
LL.B., LaSalle University; M.B.A., Babson College; Ph.D., Boston College

Bodon, Jean, Assistant Professor, Communication
B.A., Birmingham Southern College; M.A., University of Alabama Ph.D., Florida State University

Brody, Robert P., Associate Professor, Marketing
B.A., Wesleyan University; M.B.A., University of Chicago; D.B.A., Harvard University

Carfora, John, Instructor, Economics and Quantitative Analysis,
M.S.C., Economics, London School of Economics
Carriuolo, Ralf E., Professor, Humanities
B.A., Yale University; M.M., Hartt School of Music;
Ph.D., Wesleyan University
Carson, George R., Professor, Civil Engineering
B.C.E., City College, New York; M.S.C.E., Columbia University
Chandra, Satish, Professor, Accounting and Finance
B.A., University of Delhi; M.A., Delhi School of Economics;
LL.B., Lucknow Law School, India; LL.M., J.S.D., Yale University
Chepaitis, Joseph B., Professor, History
A.B., Loyola College; M.A., Ph.D., Georgetown University
Chun, Kee W., Professor, Physics
A.B., University of Pennsylvania; A.M., Princeton University;
Ph.D., University of Pennsylvania
Coleman, Charles N., Assistant Professor, Public Management
B.A., University of Maryland; M.P.A., West Virginia University
Daly, Maureen E., Director, English Language Institute
B.A., Goucher College; Certif., T.E.S.O.L., International House,
Barcelona, Spain
DeMayo, William S., Professor, Accounting and Finance
B.S., University of Pennsylvania; M.B.A., New York University
Desio, Peter J., Professor, Chemistry
B.S., Boston College; Ph.D., University of New Hampshire
DeVeau, Linsley T., Assistant Professor, Hotel and Restaurant
Management
B.S., University of Nevada, Las Vegas; M.S.I.R., University of
New Haven
Dichele, Ernest M., Assistant Professor, Accounting and Finance
B.S., University of New Haven; J.D., Boston College Law School;
LL.M., Boston University School of Law
Dinegar, Caroline A., Professor, Political Science
B.A., Cornell University; M.A., Ph.D., Columbia University
Downey, James F., Associate Professor, Hotel and Restaurant
Management
B.S., Pennsylvania State University; M.S., University of
Wisconsin-Stout; Ph.D., Purdue University
Dugan, Robert D., Associate Professor, Psychology
B.A., M.A., University of Kentucky; Ph.D., Ohio State University
Dull, James W., Associate Professor, Political Science
B.A., Wilkes College; M.A., University of Pennsylvania;
Ph.D., Columbia University
Eikaas, Faith H., Professor, Sociology
B.A., M.A., Ph.D., Syracuse University
Ellis, Lynn W., Associate Professor, Management
B.S.E.E., Cornell University; M.S., Stevens Institute of Technology;
Ph.D., Pace University
Faigel, Oleg, Associate Professor, Mechanical Engineering
Ph.D., Moscow Polytechnical Institute
Farmer, Richard E., Associate Professor, Public Management
A.B., St. Anselm's College; M.S., University of New Haven;
Ed.D., Boston University
Ferringer, Natalie S., Assistant Professor, Political Science
B.S., Temple University; M.A., Ph.D., University of Virginia

Fischer, Alice, Instructor, Industrial Engineering
B.A., University of Michigan; M.A., Harvard University
Ph.D., Harvard University

Frey, Roger G., Professor, Industrial Engineering & Computer Science
B.A., Yale College; M.S., Ph.D., Yale University
J.D., Yale School

Gaensslen, R. E., Professor, Public Management
B.S., University of Notre Dame; Ph.D., Cornell University

Gale, Alice, Practioner-In-Residence, Political Science
B.S., University of Rochester; J.D., University of Connecticut

Gangler, Joseph M., Professor, Mathematics
B.S., University of Washington; M.A., Ph.D., Columbia University

Garber, Brad T., Professor, Occupational Safety & Health Management
B.S., M.S., Drexel University; Ph.D., University of California at Berkeley

George, Edward T., Professor, Industrial Engineering
B.S., M.S., Worcester Polytechnic Institute; D.Engr., Yale University

Gere, William S., Jr., Professor, Industrial Engineering
B.M.E., M.S.I.E., Cornell University; M.S., Ph.D., Carnegie-Mellon University

Glen, Robert A., Associate Professor, History
B.A., University of Washington at Seattle;
M.A., Ph.D., University of California at Berkeley

Gordon, Judith Bograd, Associate Professor, Sociology
B.A., Brandeis University; M.A., Ph.D., University of Michigan

Griscom, Priscilla H., Instructor, Industrial Engineering
B.A., St. John's College; M.A., University of Rhode Island

Gross, Franz B., Professor, Political Science
M.A., Ph.D., Harvard University

Harricharan, Wilfred R., Professor, Management and Marketing
B.S., M.S., Ph.D., Cornell University

Hayes, Michael E., Associate Professor, Sociology
A.B., Lawrence University; M.A., M.S.W., Ph.D., University of Michigan

Hoffnung, Robert J., Professor, Psychology
A.B., Lafayette College; M.A., University of Iowa;
Ph.D., University of Cincinnati

Hosay, Norman, Associate Professor, Industrial Engineering
B.S., Wayne State University; M.S., Ph.D., University of Wisconsin

Hyman, Arnold, Professor, Psychology
B.A., M.A., Brooklyn College; M.S., City College of New York;
Ph.D., University of Cincinnati

Jones, Richard B., Associate Professor, Mathematics
B.S., M.S., Ph.D., Virginia Polytechnic Institute and State University

Kalma, Dennis L., Associate Professor, Science and Biology
B.A., Knox College; M.S., Ph.D., Yale University

Kaloyanides, Michael G., Associate Professor, Humanities
B.A., Ph.D., Wesleyan University

Kaplan, Phillip, Professor, Economics and Quantitative Analysis
B.A., University of Massachusetts; M.A., Columbia University;
Ph.D., The Johns Hopkins University

Karatzas, George, Associate Professor, Economics and Quantitative Analysis
B.A., Manchester University; M.A., Ph.D., New York University

Katsaros, Thomas, Professor, Management and Marketing
B.A., M.A., M.B.A., Ph.D., New York University

Kirwin, Gerald J., Professor, Electrical Engineering
B.S., Northeastern University; M.S.E.E., Massachusetts Institute of Technology; Ph.D., Syracuse University

Kleinfeld, Ira H., Professor, Industrial Engineering
B.S., M.S., Eng. Sc.D., Columbia University

Kublin, Michael, Assistant Professor, International Business/ Marketing
B.A., Brooklyn College; M.A., Indiana University; Ph.D., New York University; M.B.A., Pace University

Kump, J. Herbert, Associate Professor, Electrical Engineering
B.S., Pennsylvania State University; M.S., Syracuse University

Lambrakis, Konstantine C., Professor, Mechanical Engineering
B.S.E.E., M.S.M.E., University of Bridgeport; Ph.D., Rensselaer Polytechnic Institute

Lee, Henry C., Professor, Public Management
B.S., John Jay College of Criminal Justice; M.S., Ph.D., New York University

Leonhardt, Don-Tomis, Instructor, Accounting and Finance
M.S.A., Western New England College

Long, Kathleen, Assistant Professor, Communication
B.A., M.A., West Virginia University; M.S., Southern Illinois University

Mann, Richard A., Professor, Industrial Engineering
B.S.M.E., University of Wisconsin; M.S.M.E., Northwestern University; Ph.D., University of Wisconsin

Marks, Joel, Assistant Professor, Humanities
B.A., Cornell University; M.A., Ph.D., University of Connecticut

Martin, Linda R., Assistant Professor, Economics and Quantitative Analysis
B.A., Regis College; Ph.D., University of South Carolina

Mathews, Sharon C., Practitioner-In-Residence, Humanities
B.A., Columbia University; M.Arch., Yale University

Maxwell, David A., Assistant Professor, Public Management
B.B.A., University of Miami; M.A., John Jay College; J.D., University of Miami

McDonald, Robert, Associate Professor, Accounting and Finance
M.B.A., New York University

McLaughlin, Marilou, Professor, Communication
B.A., M.A., Villanova University; Ph.D., University of Wisconsin

Meier, Robert D., Professor, Public Management
B.S., Ursinus College; M.A., Ph.D., Columbia University

Mentzer, Thomas L., Professor, Psychology
B.S., Pennsylvania State University; M.S., Ph.D., Brown University

Monahan, Lynn H., Associate Professor, Public Management
B.A., McGill University; M.A., Ph.D., University of Oregon

Montazer, M. Ali, Associate Professor, Industrial Engineering
B.S., M.S., Ph.D., State University of New York at Buffalo

Moore, John B., Associate Professor, Economics and Quantitative Analysis
B.A., M.A., Florida Atlantic University; Ph.D., Southern Illinois University

Morris, Michael, Associate Professor, Psychology
B.A., M.A., Ph.D., Boston College

O'Donnell, Margaret, R.D., Assistant Professor, Dietetics & Institutional Management
B.A., Queens College; M.A., New York University

O'Keefe, Daniel C., Associate Professor, Electrical Engineering
B.E.E., City College of New York; M.S.E.E., Carnegie-Mellon University; Ph.D., Worcester Polytechnic Institute

Packian, Mathivanan, Assistant Professor, Electrical Engineering
B.S., Indian Institute of Technology; M.S., University of Iowa; Ph.D., University of Iowa

Pan, William, Professor, Economics and Quantitative Analysis
B.S., National Cheng Kung University; M.B.A., Auburn University; Ph.D., Columbia University

Parker, Joseph A., Professor, Economics and Quantitative Analysis
B.A., Lehigh University; M.A., Ph.D., University of Oklahoma

Parker, L. Craig, Jr., Professor, Public Management
A.B., Bates College; M.Ed., Springfield College; Ph.D., State University of New York at Buffalo

Parthasarathi, M. N., Director, Materials Technology; Instructor, Mechanical Engineering
B.S., Benares Hindu University, M.S., Ph.D., University of Illinois

Paty, James C., Assistant Professor, Communication
B.A., M.A., University of Alabama

Pawlowski, Helen, Instructor, Accounting and Finance
M.B.A., Lehigh University

Plotnick, Alan, Professor, Economics and Quantitative Analysis
B.A., Temple University; M.A., Ph.D., University of Pennsylvania

Rainish, Robert, Associate Professor, Accounting and Finance
B.S., City College of New York; M.B.A., Bernard M. Baruch College, City University of New York; Ph.D., City University of New York

Ramanathan, Gopal, Associate Professor, Industrial Engineering
B.Sc., M.Sc., University of Madras; M.S., University of Calgary; M.S., State University of New York; M.S., Ph.D., Polytechnic Institute of New York

Raucher, Steven A., Associate Professor, Communication
B.A., Queens College; M.S., Brooklyn College; Ph.D., Wayne State University

Reimer, Richard, Associate Professor, Accounting and Finance
B.B.A., University of Commerce, Vienna; M.S., Columbia University

Reuber, Mark, Assistant Professor, Mechanical Engineering
B.E., M.E., Carleton University; Ph.D., University of Illinois

Robin, Gerald D., Professor, Public Management
B.A., Temple University; M.A., Ph.D., University of Pennsylvania

Rocher, Liliane, Instructor, Tourism and Travel Administration
B.S., University of New Haven; M.A., University of Caen, France

Rolleri, Michael, Assistant Professor, Accounting and Finance
B.S., University of Bridgeport; M.B.A., University of Connecticut

Rosenthal, Erik J., Associate Professor, Mathematics
B.A., Queens College, State University of New York; M.A., Ph.D., University of California at Berkeley

Ross, Bertram, Professor, Mathematics; M.S., Wilkes College; M.S., Ph.D., Courant Institute, New York University

Ross, Stephen M., Associate Professor, Mechanical Engineering
B.E., New York University; Ph.D., The Johns Hopkins University

Rubin, David, Practitioner-In-Residence, Accounting and Finance
M.B.A., University of Chicago; C.P.A., Illinois

Sachdeva, Baldev K., Associate Professor, Mathematics, B.S., M.A., Delhi University, India; Ph.D., Pennsylvania State University

Sack, Allen L., Associate Professor, Sociology
B.A., University of Notre Dame;
M.A., Ph.D., Pennsylvania State University

Saleeby, B. Badri, Professor, Mechanical Engineering
B.S.M.E., Cooper Union; M.S.M.E., Ph.D., Northwestern University

Saliby, Michael, Assistant Professor, Chemistry
B.S., Union College; Ph.D., State University of New York at Binghamton

Sandman, Joshua, Professor, Political Science
B.A., M.A., Ph.D., New York University

Sarris, John, Professor, Mechanical Engineering
B.A., Hamilton College; M.S., Ph.D., Tufts University

Sherwood, Franklin B., Professor, Economics and Quantitative Analysis
B.A., M.A., University of Connecticut; Ph.D., University of Illinois

Simerson, Gordon R., Assistant Professor, Psychology
B.A., University of Delaware; M.A., Ph.D., Wayne State University

Sloane, David E.E., Professor, English
B.A., Wesleyan University; M.A., Ph.D., Duke University

Sommers, Alexis N., Professor, Industrial Engineering
B.M.E., Cornell University; M.S., Rutgers University;
Ph.D., Purdue University

Spoerri, Peter, Associate Professor, Electrical Engineering
B.S., Brooklyn Polytechnic Institute; M.S., Oregon State University;
Ph.D., Brooklyn Polytechnic Institute

Stanley, Richard M., Associate Professor, Mechanical Engineering
B.E.S., The Johns Hopkins University; M.S., M.Phil.,
Ph.D., Yale University

Staugaard, Burton C., Professor, Science and Biology
A.B., Brown University; M.S., University of Rhode Island;
Ph.D.. University of Connecticut

Sundaram, R. Meenakshi, Professor, Industrial Engineering
B.E., M.Sc., University of Madras, India;
Ph.D., Texas Tech University

Surti, Kantilal K., Professor, Electrical Engineering
B.E., University of Gujarat, India; M.E.E., University of Delaware;
Ph.D., University of Connecticut

Teluk, John J., Professor, Economics and Quantitative Analysis
B.A., Graduate School of Economics, Munich; B.A., University of New Haven; M.A., Free University of Munich

Theilman, Ward, Associate Professor, Economics and Quantitative Analysis
B.A., Ph.D., University of Illinois

Tucker, Michael, Assistant Professor, Accounting and Finance
B.A., Washington College; M.B.A., Boston University

Turcotte, Margaret, Assistant Professor, Hotel and Restaurant Management
B.S., M.B.A., University of New Haven

Tyndall, Bruce, Professor, Mathematics
B.A., M.S., University of Iowa

Uebelacker, James W., Professor, Mathematics
B.A., LeMoyne College; M.A., Ph.D., Syracuse University

Usiewicz, Ronald A., Associate Professor, Hotel and Restaurant Management
B.S., Pennsylvania State University; M.S.,
University of Wisconsin-Stout; Ph.D., Kent State University

Van Dyke, Elisabeth, Assistant Professor, Tourism and Travel Administration
B.A., University of California, Los Angeles; M.A., Ph.D., Columbia University

Vasileff, Henry D., Associate Professor, Accounting and Finance
B.A., M.A., University of Toronto; M.B.A., University of Connecticut; Ph.D., University of Toronto

Vigue, Charles L., Associate Professor, Science and Biology
B.A., M.S., University of Maine; Ph.D., North Carolina State University

Voegeli, Henry E., Associate Professor, Science and Biology
B.A., University of Connecticut; Ph.D., University of Rhode Island

Wakin, Shirley, Associate Professor, Mathematics
B.A., University of Bridgeport; M.A., Ph.D., University of Massachusetts

Walters, Gary, Instructor, Industrial Engineering
B.S., Eastern Connecticut State University; M.S., University of New Haven

Wang, Shyue-Liang, Assistant Professor, Mathematics
B.S., M.S., National Chiao Tung University, Taiwan; M.S., Ph.D., State University of New York at Stony Brook

Wankel, Charles, Assistant Professor, Management
B.B.A., Iona College, M.B.A.

Wentworth, Ronald N., Associate Professor, Industrial Engineering
B.S.M.E., Northeastern University; M.S.I.E., University of Massachusetts; Ph.D., Purdue University

Werblow, Jack, Associate Professor, Public Management
B.A., Cornell University; M.B.A., Wharton School of Finance; Ph.D., University of Cincinnati

Weybrew, Benjamin B., Associate Professor, Psychology
B.A., University of Kansas; M.A., University of California, Los Angeles; Ph.D., University of Colorado

Whalen, Cynthia, Instructor, Hotel and Restaurant Management
B.S., M.B.A., University of New Haven

Wheeler, George L., Professor, Chemistry
B.A., Catholic University of America; Ph.D., University of Maryland

Whitley, W. Thurmon, Professor, Mathematics
B.S., Stetson University; M.A., University of North Carolina at Chapel Hill; Ph.D., Virginia Polytechnic Institute and State University

Wiggins, Catherine, Associate Professor, Public Management
B.S., Hampton Institute; M.S.W., University of Pennsylvania; Ph.D., New York University

Williams, William H. III, Instructor, Hotel and Restaurant Management
B.S., M.S.I.R., University of New Haven

Wnek, Robert E., Professor, Accounting and Finance
B.S., Villanova University; LL.M., Boston University School of Law; J.D., Delaware Law School of Widener College

Woodruff, Martha, Instructor, Economics and Quantitative Analysis
M.A., Murray State University

Wright, H. Fessenden, Professor, Science and Biology
A.B., Oberlin College; M.S., Ph.D., Cornell University; F.A.I.C.

York, Michael W., Professor, Psychology
B.A., M.A., Southern Methodist University;
Ph.D., University of Maryland

Faculty Professional Licensure & Accreditation

Bechir, M. Hamdy, Professional Engineer, Connecticut, Massachusetts, New Hampshire, Vermont, Oklahoma
Carson, George R., Professional Engineer, Connecticut, Massachusetts, New York, New Jersey; Landscape Architect, Connecticut; Land Surveyor, Connecticut, Massachusetts; Professional Planner, New Jersey
DeMayo, William, Certified Public Accountant, Connecticut
Dichele, Ernest M., Attorney at Law, Connecticut, Massachusetts; Certified Public Accountant, Connecticut, Massachusetts
Dugan, Robert D., Psychologist, Connecticut; Diplomate in Industrial Psychology of the American Board of Professional Psychology
Everhart, Deborah, Clinical Psychologist, Connecticut
Faigel, Oleg, Professional Engineer, Connecticut
Garber, Brad T., Certified Industrial Hygienist; Certified Safety Professionaal; Diplomate, American Board of Toxicology
Hyman, Arnold, Consulting Psychologist, Connecticut
Meier, Robert D., Consulting Psychologist, Connecticut
Monahan, Lynn Hunt, Clinical Psychologist, Connecticut
O'Donnell, Margaret, Registered Dietician, Connecticut
Parker, Joseph A., Accredited Personnel Specialist
Parker, L. Craig, Jr., Consulting Psychologist, Wisconsin; Certified Psychologist, Province of Alberta, Canada
Rolleri, Michael, Certified Public Accountant, Connecticut
Ross, Bertram, Professional Engineer, New York, Ohio
Weybrew, Benjamin B., Consulting Psychologist, Connecticut
Wnek, Robert E., Certified Public Accountant, Connecticut; Member of Bar, Connecticut; Member of Bar, Pennsylvania
York, Michael H., Clinical Psychologist, Connecticut

Adjunct Faculty, 1985-1986

Astarita, Edward, Lecturer, Hotel and Restaurant Management
M.S., Columbia University
Barnea, Jacqueline, Lecturer, Management
M.B.A., Ph.D., University of Paris Patheon-Sorbonne
Bauer, Margaret, Lecturer, Marketing
B.S., M.B.A., Long Island University
Bertone, Carmen M., Lecturer, Psychology
Ph.D., Los Angeles University
Chief, Human Factors Engineering, Sikorsky Aircraft
Blanchet-Ruth, John, Lecturer, Executive Master of Business Administration
M.A., University of New Mexico
Brown, Janice B., Lecturer, Industrial Engineering
M.S., Southern Connecticut State University
Brignola, Joseph M., Lecturer, Industrial Engineering
M.S., University of New Haven
Systems and Programming Manager, Producto Machine Corporation

Brutza-Rawling, Carol, Lecturer, English Language Institute
M.A., New York University
Buchholz, Geraldine S., Lecturer, Public Management
M.P.A., University of New Haven
Executive Director, Waterford Public Health Nursing Services
Cardona, Raymond A., Lecturer, Environmental Science
Ph.D., St. John's University
Manager of Registration and Toxicology, Uniroyal Chemical Company
Chan, Raymond, Lecturer, Economics and Quantitative Analysis
Ph.D., Minnesota University
Registered Professional Engineer, Uniroyal, Inc.
Chmura, Joseph E., Lecturer, Industrial Engineering
M.S.C.I.S. & M.S.O.R., University of New Haven
Staff Specialist, Southern New England Telephone Company
Ciarlone, Richard A., Lecturer, Economics and Quantitative Analysis
M.B.A., University of Maryland
Manager, Decision Support Systems, Avco-Lycoming Corporation
Cohen, Loris L., Lecturer, Legal Studies
J.D., University of Miami Law School
Staff Attorney, Connecticut Legal Services
Culhane, Michael C., Lecturer, Economics and Quantitative Analysis
M.A., Fairfield University; J.D., University of Bridgeport
Arbitrator
D'Amateo, Steven, Lecturer, Executive Master of Business Administration
E.M.B.A., University of New Haven
D'Amore, Robert, Lecturer, Industrial Engineering
B.A., Quinnipiac College
Cost Accounting Manager, Emhart, Inc.
Dary, David, Lecturer, Accounting and Finance
M.B.A., University of Connecticut
AVP-Portfolio Manager, City Bank, New York
Delia, Anselmo M., Lecturer, Occupational Safety and Health Management
J.D., New York Law School
Attorney, Donahue and Votto, P.C.
DeReamer, Russell, Lecturer, Occupational Safety and Health Management
B.S., Purdue University
Devaney, Earl, Lecturer, Marketing
M.B.A., University of Massachusetts
Gerald Rosen Company
DiNapoli, Alfred F., Lecturer, Accounting and Finance
M.B.A., University of New Haven
Senior Cost Accountant, Eyelet Specialty Company
DiPietro, Lynn, Lecturer, English Language Institute
Certificate, Royal Society of Arts, London, England
Donkin, Arthur, Lecturer, Accounting and Finance
M.B.A., Rutgers University
President, Management Consulting, Essex Northeast
Dubno, Orest T., Lecturer, Accounting and Finance
M.P.A., University of New Haven
Eckenfelder, Donald J., Lecturer, Occupational Safety and Health Management
B.S., Lafayette College
Manager, Loss Prevention, Chesebrough-Pond's, Inc.

Everhart, Deborah, Lecturer, Psychology
Ph.D., University of Wisconsin
Director of Counseling, University of New Haven

Fithian, Luke, Lecturer, Marketing
M.B.A., Seton Hall University
Marketing Manager, Uniroyal, Inc.

Florkoski, Philip, Lecturer, Environmental Science
B.S.E., University of Connecticut; M.P.A., University of Southern California
Environmental Analyst, D.E.P., State of Connecticut

Forbes, Raymond, Lecturer, Psychology
Ph.D., U.S. International University
Independent Consultant

Francis, Pamela C., Lecturer, Industrial and Organizational Psychology
M.A., University of New Haven
Director of Special Studies, School of Professional Studies & Continuing Education

Freeman, Joseph, Lecturer, Management
B.S., M.B.A., Seton Hall University
Director of Marketing, Planning and Development, Uniroyal, Inc.

Gavaghan, Thomas, Lecturer, Management
M.B.A., University of Hartford
District Staff Manager, Southern New England Telephone Company

Ghattas, Reda, Lecturer, Industrial Engineering
M.S.I.E., Rutgers University
Manager, Industrial Engineering Department, Pratt & Whitney Aircraft

Greenwald, Lisa, Lecturer, Management
M.A., University of New Haven

Griffin, John, Lecturer, Economics and Quantitative Analysis
Ph.D., Columbia University

Groeger, Joseph H., Lecturer, Forensic Science
Ph.D., University of Connecticut;
Research Associate/Material Science; Instructor Polymer Chemistry, University of Connecticut

Haberman, Ronald A., Lecturer, Industrial Engineering
B.S.A.E., Pennsylvania State University; M.S.O.R., Florida Institute

Harston, John, Lecturer, Management
M.S.I.R., Cornell University
Vice President of Personnel and Industrial Relations, Sikorsky Aircraft

Harter, Lillian G., Lecturer, Environmental Science
Ph.D., University of Connecticut

Hartung, Daniel, Lecturer, Economics and Quantitative Analysis
M.S., University of New Haven
Manager, Employee Relations, Raymark Industries

Hecht, Geoffrey, Lecturer, Hotel and Restaurant Management
J.D., University of Miami School of Law

Hertel, Eugene S., Lecturer, Industrial Engineering
M.S., North Carolina State University
Information Scientist, Uniroyal, Inc.

Holt, Martin M., Lecturer, Marketing
B.S.E.E., Northeastern University; M.B.A., University of Bridgeport

James, William H., Lecturer, Economics and Quantitative Analysis
Ph.D., Yale University
Johnston, Robert J., Lecturer, Executive Master of Business Administration
M.B.A., University of New Haven
Independent Computer Consultant
Kaletsky, Richard M., Lecturer, Occupational Safety and Health Management
M.S., Southern Connecticut State College
Supervisory Safety Specialist, Federal OSHA Office
Kelley, David, Lecturer, Industrial Engineering
M.S.I.E., University of New Haven
Systems Programming, Bunker-Ramo Information Systems
Keyes, Edward, Lecturer, Psychology
Ph.D., University of Iowa
Consulting Psychologist
Kraus, John, Lecturer, Management
M.B.A., University of Pennsylvania
Krause, Leonard, Lecturer, Occupational Safety and Health Management
Sc.D., University of Cincinnati; Kettering Institute College of Medicine; Director, Environmental Hygiene and Toxicology, Olin Corporation
Kubic, Thomas A., Lecturer, Public Management
J.D., St. John's University; M.S., C.W. Post
Detective/Criminalist, Nassau County Police Department
Kuchar, Charles, Lecturer, Accounting and Finance
M.B.A., University of New Haven
Senior Portfolio Review Analyst, Barclays American Business Credit
Kuziel, Denise Marini, Lecturer, Public Management
B.A., University of Connecticut, C.A.G.S., M.S., Southern Connecticut State University
Survey Analyst, Southern New England Telephone Company
Lamberti, James T., Lecturer, Industrial Engineering
M.S., Rutgers University
General Supervisor, Pratt & Whitney Aircraft
Larson, David H., Lecturer, Public Management
Ph.D., University of Connecticut
Assistant Superintendent, Personnel and Administration, Southern Board of Education
Lavarini, Charles E., Lecturer, Industrial Engineering
M.S., University of Arizona
Levin, Nehemia, Lecturer, Public Management
M.P.H., Yale University; Ph.D., University of Connecticut
Director, Mansfield Counseling Center
Lewis-Cullin, Linda J., Lecturer, Marketing
B.S., New York University; M.A., Columbia University; M.B.A., Baruch College
Listro, John, Lecturer, Accounting and Finance
Ph.D., University of Connecticut
Markle, Arnold, Lecturer, Public Management
L.L.B., Boston University
State's Attorney for New Haven County
Marottoli, Vincent, Lecturer, Hotel and Restaurant Management
Ph.D., University of Connecticut

McGough, Dennis R., Lecturer, Psychology
M.A., University of New Haven
Director of Personnel, Performance Products and Services Group, Olin Manufacturing

McGuigan, Austin, Lecturer, Public Management
J.D., Boston University School of Law
Chief State's Attorney, State of Connecticut

McPherson, Stephen B., Lecturer, Public Management
M.B.A., University of New Haven
Controller, Hospital of St. Raphael

Melita, Russell, Lecturer, Management
B.S., M.B.A., University of Bridgeport
Director Human Resources & Administration, The City Printing Company

Merchant, Kathryn E., Lecturer, Psychology
M.S.W., University of Connecticut
Urban Consultant, Holt, Wexler & Crawford

Miles, Daniel, Lecturer, Economics and Quantitative Analysis
M.B.A./M.S.I.E., University of New Haven
Supervisor of Shipbuilding, Groton Sub Base

Moore, Donald, Lecturer, Management
E.M.B.A., University of New Haven
Plant Manager, Times Fiber Communications

Morgan, Colin J., Lecturer, Marketing
M.A., Oxford University
Vice President and General Manager, Aramis International

Nadimfard, Abbas, Lecturer, Management
Ph.D., Wharton School, University of Pennsylvaniaa

Newman, Edward, Lecturer, Executive Master of Business Administration
M.B.A., University of New Haven

Nemerson, Matthew, Lecturer, Management
M.B.A., Yale School of Organization and Management
Vice President, Science Park Development Corporation

Noonan, James, Lecturer, Accounting and Finance
M.B.A., University of New Haven
Account Executive, Merrill Lynch

Norton, Phillip, Lecturer, Management
M.B.A., University of New Haven
Systems Engineer, United Technology, Norden Division

Oaks, Jose, Lecturer, Accounting and Finance
M.B.A., New York University; C.P.A.
Financial Manager, United Technologies Corporation

O'Connor, Frank, Lecturer, Sociology
M.S.W., University of Connecticut
Social Worker, Yale-New Haven Hospital

O'Mahony, Michael, Lecturer, Industrial Engineering
M.S., Fordham University; M.A., Alabama University
Project Manager, General Electric Company

Ostrander, F. Taylor, Lecturer, Executive Master of Business Administration
B.A., Williams College
Consultant to AMAX, Inc.

Ostroske, Kenneth, Lecturer, Accounting and Finance
J.D., University of Connecticut; C.P.A.
Tax Manager, Arthur Young and Company
Orr, Richard G., Lecturer, Marketing
B.A., Hofstra University; M.B.A., Baruch College
Pae, Ki-Tae, Lecturer, Economics and Quantitative Analysis
Ph.D., University of Connecticut
Pardo, Peter, Lecturer, Management
J.D., Western New England School of Law
M.B.A., Harvard University
Patten, Joseph M., Lecturer, Executive Master of Business Administration
M.A., University of Illinois
Independent Consultant
Pinto, John D., Jr., Lecturer, Industrial Engineering
M.A.S., Boston University
Program Manager, Input-Output Computer Systems
Potochney, Andrew, Lecturer, Accounting and Finance
M.B.A., University of Bridgeport
Ramsey, Geoffrey, Lecturer, Hotel and Restaurant Management
A.O.S., Culinary Institute of America
B.S., University of New Haven
Randall, Edward C., Lecturer, Executive Master Of Business Administration
M.B.A., Univerrsity of New Haven
Vice President of Finance, Domac Enterprises
Reffner, John A., Lecturer, Public Management
Ph.D., University of Connecticut
Rexford, Stephen, Executive Master of Business Administration
M.B.A., Columbia University
Ryack, Bernard L., Lecturer, Industrial Engineering
Ph.D., University of Massachusetts
Assistant Director, Human Factors Department, Naval Submarine Medical Research Laboratory
Ryba, Walter G., Jr., Economics and Quantitative Analysis
Ph.D., Fordham University; J.D., University of Connecticut
Sandell, Susan, Lecturer, Sociology and Psychology
Ph.D., Union Graduate School
Coordinator of Psychosocial Programming, Sound View Specialized Care Center
Santello, Dolph, Lecturer, Public Management
D.P.A., Nova University
Staff Manager, Information Systems Department, Southern New England Telephone Company
Scalise, Joseph, Lecturer, Public Management
M.S.F.S., University of New Haven
Chief Forensic Medical Investigator, Office of Medical Examiner, Nassau County
Scheuing, Eberhard,, Lecturer, Executive Master of Business Administration
Ph.D., University of Munich, Germany
Shaw, George B., Lecturer, Executive Master of Business Administration
Ph.D., J.D., University of San Fernando Valley College of Law
Signore, Juliette, R.D., Lecturer, Dietetics
M.A., Fairfield University

Smith, W. Reed, Lecturer, Economics and Quantitative Analysis
B.S., Marietta College
Manager, Operations Research/Economist, Uniroyal Chemical Company

Sotir, Thomas, Lecturer, Management
M.B.A., Xavier University
Director of Industrial Relations, Electric Boat Division, General Dynamics Corporation

Sullivan, Thomas, Lecturer, Management
Ed.D., Nova University

Sylvia, Edwin A., Lecturer, Psychology
M.A., University of Southern Mississippi
Chief, Management Development and Training, Electric Boat Division, General Dynamics Corporation

Tolonen, Karl, Lecturer, Environmental Science
Ph.D., Yale University
Consulting Ecologist and Environmental Analysis

Visconti, John, Lecturer, Accounting and Finance
M.S., University of New Haven
Staff Accountant, Deloitte, Haskins and Sells

Vitello, Joanne, Lecturer, English Language Institute
M.S., Southern Connecticut State University

Wasserman, John, Lecturer, Management
M.B.A., University of Hartford
Director of Education and Training, St. Vincent's Medical Center

Welsh, Walter, Lecturer, Accounting and Finance
L.L.M., New York University School of Law; J.D., University of Connecticut Law School

Werblow, Suzanne, Lecturer, Economics and Quantitative Analysis
Ed.M., Harvard University

Williams, Jeffrey, Lecturer, Accounting and Finance
M.B.A., University of Bridgeport
C.P.A. Charter Arms

Wilson, Ned, Lecturer, Executive Master of Business Administation
Ph.D., Ohio State University
President, New England Management Services, Inc.

Wolk, Stuart R., Lecturer, Executive Master Of Business Administration
Presiden:, New England Management Services, Inc.

Zadravec, Edward, Lecturer, Executive Master Of Business Administration
M.B.A., University of Bridgeport

Zottola, Armand, Lecturer, Economics and Quantitative Analysis
Ph.D., Catholic University of America

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Mailing Address (if different from above) _____
Street Apt. # City or Post Office State Zip Code

Birth Date _____ Social Security No. _____

Please indicate the program for which you are applying: _____

If you desire a concentration within that program of study, please indicate: _____

Where do you plan to attend most of your classes?

☐ at the West Haven campus? ☐ at an off-campus center? Specify:

☐ Groton/New London ☐ Trumbull
☐ Danbury ☐ Middletown
☐ Clinton ☐ Waterbury
☐ Wallingford

Do you plan to study ☐ part time or ☐ full time?

Indicate the trimester you intend to start graduate study.

☐ Fall Term September, 19____ ☐ Winter Term January, 19____ ☐ Spring Term April, 19____ ☐ Summer, 19____

Will you be applying for a student loan? ☐ Yes ☐ No

How did you learn about UNH? ☐ Radio ☐ Newspaper Ad ☐ TV Commercial ☐ Direct Mail
☐ Friend ☐ School Guide ☐ Off-campus Coordinator ☐ College Fair ☐ Other _____

please turn over

Scholastic Record (list in chronological order all colleges and universities attended)

Name of School	Location	Attendance From – To	Date of Graduation	Degree	Major Program

Employment Record (from present position to include the past five years)

Position Held	Date	Name of Employer	Location	Telephone No.

Citizenship: Are you a citizen of the U.S.? YES ☐ NO ☐
(If answer is NO, you must complete the questions listed below)

1. **Resident Status:**
Are you a permanent resident of the U.S.? YES ☐ NO ☐
If answer is YES: List your alien registration number A_ _ _ _ _ _ _ _ _
If answer is NO: Complete all questions below. Do not leave any blank spaces.
Write in NA (not applicable) if a question does not apply to you.

2. **Personal Information:** Male _____ Female _____
Place of Birth _____ Country of Citizenship _____

3. **Language Information:**
A. I shall take, or have taken the TOEFL (Test of English as a Foreign Language) examination on: Date: _____
Place: _____ Score: _____
B. First language of use: _____
Number of years of formal instruction in English: _____ Where _____

4. **Immigration Information:**
A. What is your current Visa status? (if none go to section B) Circle one:

B-1 B-2 F-1 F-2 H H-1 J-1 J-2 L M Other _____

School or organization issuing document used to obtain entry into the U.S.: _____
Date of initial entry into the U.S.: _____ Admission number: _____
(The admission number is located on the top portion of Form I-20 I.D.).
B. What type visa will you be applying for: _____

Certificate To Be Signed By All Applicants

The information supplied on this application is complete and true to the best of my knowledge. All materials and supporting records submitted by me or on my behalf in connection with this application or my attendance will not be released to anyone other than authorized university personnel without my consent.

It is understood that incorrect or falsified information will be grounds for disapproval of this application or dismissal from the university. The undersigned agree(s) to pay all financial obligations if admitted to and attending the university, including obligations incurred if financial aid is terminated, reduced or postponed for any reason.

The undersigned also authorize(s) the Office of Public Relations of the university to publish the applicant's picture, address, major, honors, sports or other activities for public relations purposes should the applicant decide to attend the university in any capacity. This publicity authorization may be rescinded by notifying the Office of Public Relations in writing within 30 calendar days of admission to the university.

Applicant's Signature _____ Date _____

The University of New Haven does not discriminate in admission or employment on the basis of sex, race, religion, age, national origin or physical handicap. An equal opportunity/affirmative action institution.

University of New Haven

Please Print or Type.
Complete both sides.

Please Expedite

RECOMMENDATION FORM

To be completed and returned directly to:

UNIVERSITY OF NEW HAVEN GRADUATE ADMISSIONS
ADMISSIONS SECRETARY
WEST HAVEN, CONNECTICUT 06516

Name of applicant _____ Undergraduate college _____

Program to which applicant is applying _____

TO THE RESPONDENT: The above-named person has applied for admission to the Graduate School of the University of New Haven. Please provide us with your estimate of the qualifications of this candidate and of the reasonableness of his or her academic goals. It will help us if you indicate how long and in what capacity you have been acquainted with the candidate. If possible, compare his or her competence, motivation and intellectual ability with others you have known with similar goals. A candid, thoughtful statement, free of exaggeration will be most useful to us. Please use reverse side of this sheet when necessary.

In conformity with the Family Educational Rights and Privacy Act of 1974 we cannot regard letters of recommendation as confidential unless students waive their right to inspect such letters. If you wish the school to keep this information confidential, please have the applicant sign the waiver on the back of this page.

please turn over

Recommendation, cont'd.

I: ☐ recommend strongly ☐ recommend ☐ recommend with reservation

☐ do not recommend this candidate for graduate study at the University of New Haven.

Name _____

Position _____

Address _____

Date _____

Signature _____

Since the applicant expects your response to be considered as part of his/her application, we plan to defer action on the application until hearing from you.

Thank you for your assistance.

WAIVER

I hereby waive my right to inspect any letters of recommendation written to the University of New Haven Graduate School on my behalf by _____.

(Applicant's Signature) _____

University of New Haven

Please Print or Type.
Complete both sides.

Please Expedite

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(Applicant's Signature) _____

Transcript Request Sheet. To be filled out and mailed directly to the school or schools from which transcripts are requested. This form may be photocopied as necessary. Most schools charge for this service. Again, under the Family Rights and Privacy Act, this form must be signed before it is sent.

Request for college transcript.

I approve the release of an official copy of my transcript to the University of New Haven.

_____
Signature Date

TO: Registrar

_____
name of college or university

_____
address

_____

Please send an official transcript of my work to:

Dean of the Graduate School
University of New Haven
West Haven, CT 06516

Name _____

Date of Birth _____

Date of Graduation _____

Years attended _____

Current address _____

_____

Transcript Request Sheet. To be filled out and mailed directly to the school or schools from which transcripts are requested. This form may be photocopied as necessary. Most schools charge for this service. Again, under the Family Rights and Privacy Act, this form must be signed before it is sent.

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Date of Graduation _____

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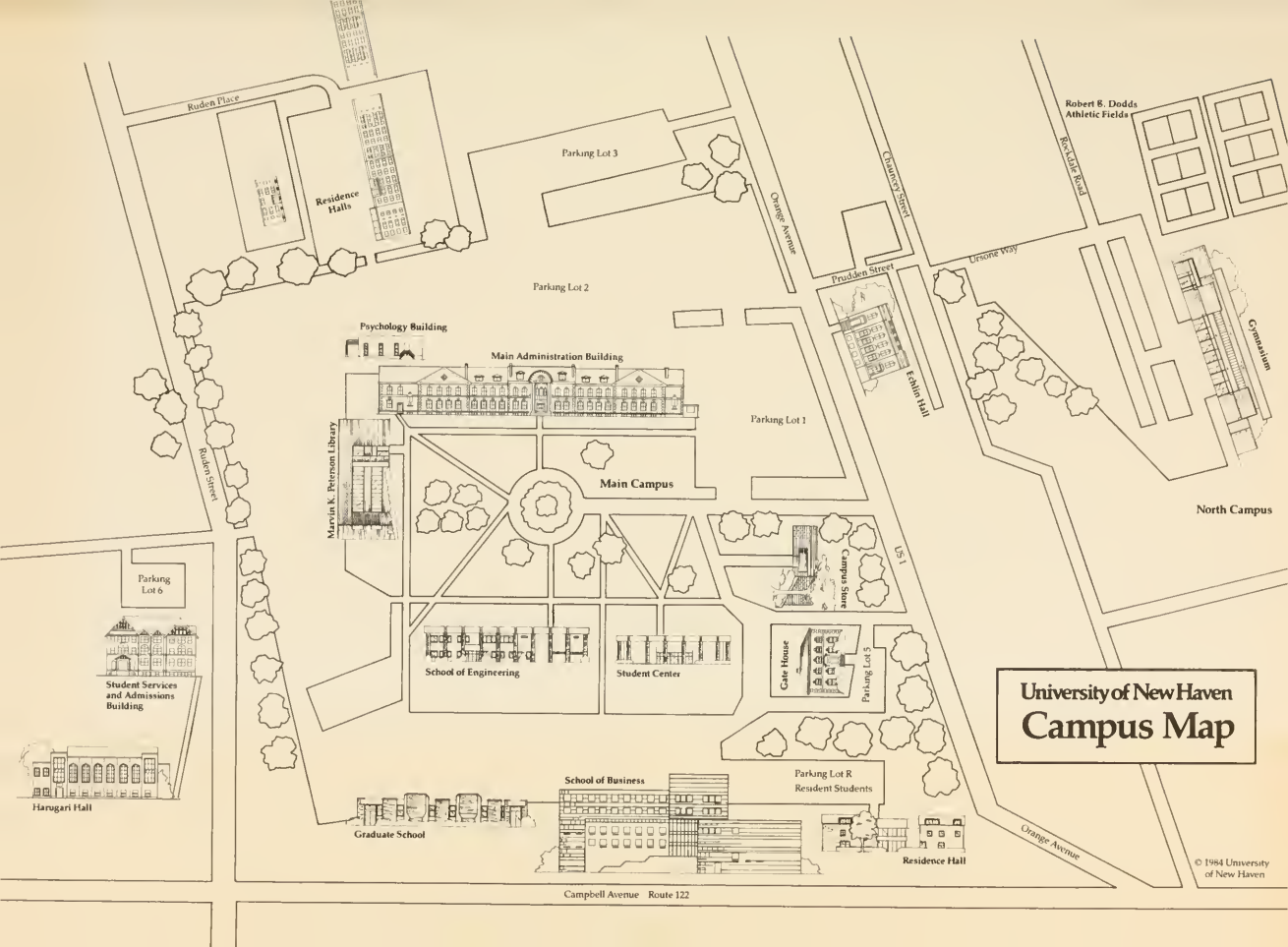
_____


University of New Haven
Campus Map
Ruden Place
Residence Halls
Parking Lot 3
Parking Lot 2
Orange Avenue
Chauncey Street
Prudden Street
Ursone Way
Rockdale Road
Robert B. Dodds Athletic Fields
Gymnasium
Echlin Hall
Psychology Building
Main Administration Building
Parking Lot 1
Marvin K. Peterson Library
Ruden Street
Main Campus
North Campus
US 1
Campus Store
Parking Lot 6
Student Services and Admissions Building
School of Engineering
Student Center
Gate House
Parking Lot 5
Harugari Hall
School of Business
Parking Lot R
Resident Students
Graduate School
Residence Hall
Orange Avenue
Campbell Avenue Route 122
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West Haven, CT 06516

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